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Econometric Analysis of the Wealth Gap between East and West Germany

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Abstract

Nearly 25 years after the German reunification, vastly different living conditions between East and West Germany still remain. This is particularly true for the distribution of net wealth which is of special importance for the well-being of individuals. Wealth provides utility in a number of ways, for instance, by acting as a buffer against negative income shocks. Using the wealth component of the German Socio-Economic Panel (GSOEP), we find that, on average, members of western households exhibit a net worth more than twice as high as their eastern counterparts. This wealth gap remains roughly stable over time and is much more pronounced for upper parts of the distributions.

In this paper, we analyze how much of this gap in per capita net wealth at different parts of the distribution can be attributed to observable factors such as permanent income or socio-demographic characteristics. We carry out our decomposition analysis via a reweighting approach. We find that for the lower part of the distribution, most of the gap can be attributed to the wealth determinants, while this share is much lower at the upper part. The most important contributing factors in this regard are the lower levels of income still prevailing in East Germany as well as differentials in labor market outcomes. Moreover, Germans in younger cohorts feature more similar levels of wealth and are more similar than the older generation. For them the success on the labor market is by far the most important factor. We also find that home ownership rates differ markedly between the two regions and play an important role for the wealth gap even though differences in housing prices also seem matter.

Key words: household finance, wealth distribution, wealth gap, decomposition methods, counterfactuals, distributional analysis

JEL: D14, D31, D63, E21

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1 Introduction

The 9th November 1989 went down as a watershed event in the history of Germany. After 40 years of separate statehood following the Second World War, the fall of the Berlin Wall, the symbol of separation between East and West Germany, ushered in a new era. The chain of events following this date culminated about one year later, on 3rd October 1990, in the German reunification, when the former communist German Democratic Republic (GDR) joined the Federal Republic of Germany (FRG) in German unity. The expressed goal of politicians at the time was to rapidly bring living standards for citizens of the former GDR on par with their western compatriots (in this context, chancellor Kohl expressed his now famous vision of impending "blooming landscapes" in East Germany). However, even today, after nearly 25 years of German unity, vast differences in terms of economic well-being remains a reality between the two parts of the country. While differentials in wages, household incomes or unemployment rates between both parts of Germany have been studied fairly well (see, for instance Biewen 2001, Fuchs-Schündeln, Krueger and Sommer 2010), the analysis of differences in wealth levels is still at its beginning. The main reason for this situation is the usually more problematic data collection process for personal wealth compared to other measures of economic well-being. Respondents are often unwilling to give a detailed account of their wealth situation or are simply not able to assess it accurately. As Davies and Shorrocks (2000) point out, household surveys are less reliable for questions on wealth than for those concerning income. Nevertheless, several recent studies have been looking into the distribution of wealth for Germany, at least on a descriptive level (Hauser 2010, Frick and Grabka 2010, Grabka 2014).

Why does the asset situation of Germans matter in the first place? If one is interested in the overall well-being of a group of people, assessing their financial situation is of key importance. Wealth provides utility for members of a household in a number of different ways:[1] First of all, wealth can yield income streams through interest or dividends on capital investments. It can also provide direct utility - for instance, through owner-occupied housing. Moreover, precautionary wealth can ensure financial stability by serving as a buffer against idiosyncratic risks such as

[1] See, for instance, Grabka and Frick (2007) and Frick and Grabka (2010).

negative income shocks. In addition, a person can achieve a high social status as well as economic and political power by accumulating wealth. Finally, a high net worth enables one to care for one's children via gifts or bequests.

Against this backdrop it is important to assess the factors that contribute to the still prevailing differences in wealth levels and wealth inequality between East and West Germany.[2] There are several institutional reasons that can explain the lower levels of wealth in East Germany today.[3] Probably the most important factor is the strongly restricted opportunity for wealth accumulation in the former GDR. Namely, private ownership of business assets and real estate wealth were largely prohibited. Thus, only few eastern households owned these kinds of assets at the time of reunification. Furthermore, while wages and pension payments where converted to Deutsche Mark (DM) on a one-to-one basis, this was not true for notable financial wealth.[4] Once households where legally able to acquire ownership on named assets, it was often not feasible for them to do so due to the quickly deteriorating financial situation of many eastern households in the face of mass unemployment and starkly declining wage levels. A more subtle point in this context is the social learning process. Children acquire attitudes towards saving behavior and the ownership of certain assets in large parts from their parents. This might have helped to perpetuate negative attitudes towards wealth accumulation in the former GDR. It is therefore of interest how these very different surrounding conditions continue to shape the levels of wealth accumulation in these two regions today.

With this in mind, an important question is how much of the observed wealth difference between the two parts of Germany can be explained by observable differences in factors that are associated with higher wealth levels such as income, educational attainment and age. Previous studies tried to decompose differences in wealth levels between certain groups. For instance, Cobb-Clark and Hildebrand (2006) and Bauer, Cobb-Clark, Hildebrand and Sinning (2011) look into the determinants of the wealth gap between the native population and immigrants in the

[2] Grabka (2014) discusses this wealth gap as part of a special issue of the DIW Wochenbericht series on the socio-economic reality in Germany 25 years after the fall of the Berlin wall.

[3] See Hauser (2010), Frick, Grabka and Hauser (2010) and Frick and Grabka (2010) for more background information.

[4] Financial wealth of more than 6,000 DM where converted on a two-to-one basis only.

United States and Germany, respectively. Both studies find that the adverse financial situation of immigrant households, compared to native households, can in large parts be explained by their unfavorable socio-demographic make-up. Specifically, migrant households are on average younger and less educated compared to native households in these countries. Sierminska, Frick and Grabka (2010) assess the difference in personal wealth between men and women in Germany. They find that the on average lower wealth levels of females are largely determined by their lower levels of income and labor market experience. In the following we try to decompose the wealth gap between East and West German households in a similar fashion.

The rest of the paper is structured as follows. In Section 2 we describe key aspects of the wealth distribution in Germany as well as the findings of previous research of the wealth situation of individuals and households in East and West Germany since reunification. Summary statistics for per captia net wealth and potential wealth determinants in our sample are presented in Section 3. Next, Section 4 covers the foundations of our decomposition method via a reweighting approach. In Section 5 we present the empirical results of our decomposition analyses. Finally, Section 6 concludes.

2 Wealth in Germany

In order to analyze the wealth gap between East and West Germany, we first have to define what we mean by "wealth". First of all, it is decisive whether one is interested in the wealth positions of individuals or households. Most surveys ask for information on asset and debt positions only on the household level. Consequently, most studies focus on household wealth. However, even if data on personal wealth is available, it is unclear how to disentangle the wealth position of individual household members as they are unlikely to take financial decisions independently of each other. Frick and Grabka (2010) touch upon this problem by stressing that it comes down to how one sees the implicit redistribution within a household. If one focuses on individual wealth, one makes the implicit assumption that redistribution does not occur on the household level. Looking at the average wealth in a household, on the other hand, implies that personal wealth is completely redistributed on the household level. Thus, the former type of analysis will

typically unveil higher levels of wealth inequality compared to the latter one. In reality, the true level of redistribution between household members will likely lie somewhere in-between these two extremes. Here, we will focus on per capita net wealth as this is the more conservative measure and we believe it to be the more meaningful level of observation for this type of analysis.

Usually wealth studies concentrate on disposable wealth which Davies and Shorrocks (2000) define as nonhuman wealth minus debt. Human capital arguably constitutes the largest fraction of wealth for many individuals, especially for younger ones. However, it is notoriously hard to measure with any degree of accuracy. Thus, human capital is generally excluded from the definition of wealth. A similar argument applies to the expected value of vested pension rights and other social security wealth. In a country with a generous welfare state, such as Germany, these entitlements probably make up a large part of the wealth of a typical households. At the same time, the cash value of future entitlements is afflicted by uncertainty with respect to appropriate discount rates, risk adjustment factors and the like. For this reason, most wealth surveys do not ask for these wealth positions.[5] Another point in this regard is that the aforementioned benefits provided by wealth do not apply to human capital and social security wealth in the same way as for financial and housing wealth. The reason for looking at wealth net of debts is that it is more informative of the well-being of household members compared to gross wealth. Consider, for example, gross housing wealth which would portray the financial situation of a person too positive if one did not take into account the mortgage debt that usually accompanies such an investment.

In order to analyze the wealth gap in a sensible fashion, one must first have a solid understanding of the key properties of such a distribution. Both Davies and Shorrocks (2000) and Jenkins and Jantti (2005) provide a good summary of the stylized facts of wealth distributions. First of all, the distribution of net wealth is generally much more unequal than the distribution of income.[6] For most people, wealth is the result of an accumulation process of income streams

[5] In Frick and Grabka (2010) an attempt is made to estimate the impact of entitlements to government transfers on the distribution of wealth in Germany. They find that accounting for these claims lowers the inequality by about 20 % as they are very evenly distributed across the population.

[6] In Germany wealth inequality, as measured by the Gini coefficient, is about double as high as income inequality (see Hauser and Stein 2006).

over time. Thus, the prevailing income inequalities are also added up and intensified so that the resulting wealth distribution is much more spread out. Moreover, the distribution of wealth is typically right skewed with a very fat right tail. Because a few individuals own a disproportionally large fraction of the total wealth, one often talks of a "parade of the dwarves" in this context. Thus, leaving out such households simply due to sample variation can significantly effect the sample composition with respect to the distribution of wealth. Hence, it is important to oversample rich households in surveys on household wealth. Furthermore, financial wealth is usually much more unequally distributed compared to non-financial assets - at least if owner-occupied housing constitutes a significant fraction of wealth. Finally, many household members never accumulate much wealth so that one usually observes a high number of households with non-positive net wealth. Specifically, most wealth distributions feature a pronounced mass-point at zero net wealth as a large fraction of households report exactly zero net worth.

As Jenkins and Jantti (2005) point out, these stylized facts have important implications for the modeling of the wealth distribution. First of all, it should be obvious that the mean is generally not a very informative moment for such a spread-out and skewed distribution. Thus, it is not sufficient to estimate only the mean wealth difference, for instance via an Oaxaca-Blinder decomposition. To get a more complete picture of the wealth gap, one should investigate different parts of the distribution - e.g. by looking at several quantiles such as the median. Additionally, the high number of households with zero or negative net wealth suggests looking at the proportion of household members with non-positive wealth levels. The often found spike-at-zero means that smoothing techniques, like kernel-density estimation, are usually not feasible. In Section 4 we will lay out how one can analyze the wealth gap along the entire distribution taking into account the peculiarities of the wealth distribution.

2.1 EVS

Early studies on the distribution of private wealth in Germany mainly relied on the Income and Expenditure Survey (Einkommens- und Verbrauchsstichprobe: EVS) a microcensus of 1 % of the German population surveyed every five years since 1964 by the Federal Statistical Office

of Germany. One of the first studies looking into the financial and asset situation of German households in detail is Börsch-Supan and Eymann (2002). The authors focus on the composition of household portfolios for the time period from the 1970s to the mid 1990s. When comparing the situation for East and West Germany, Börsch-Supan and Eymann (2002) use the 1993 wave of the EVS. They find that households in East Germany posses much lower levels of wealth compared to those in the West and that it is distributed more unevenly. They speculate that part of this higher inequality might be due to a small group of profiteers of the transition process. The authors also highlight that the wealth distribution of the youngest cohort in the sample is much more similar between the two regions which might reflect the different opportunities to accumulate wealth before reunification. Moreover, the average portfolio composition differs widely between the two regions: on average, eastern portfolios are much less diversified than their western counterparts, feature almost twice the share of wealth in safe assets (43 % to 22 %) and are much less likely to contain real estate (28 % to 51 %).

Hauser (2010)[7] uses the EVS to compare the wealth of households in East and West Germany in the time directly following reunification from 1993 to 2003.[8] He finds a trend of convergence between East and West Germany in terms of inequality and level of disposable household wealth for this time period. Nonetheless, households in the eastern part of reunified Germany lag their western counterparts considerably in both income and wealth levels. In 1993 the net worth of an average household in the East was 36,400 € while this figure was 125,400 € for the West. Thus the average eastern household commanded only about 29 % of the wealth of the average household in West Germany. Until 2003 these figures increased notably for both parts of Germany to 59,600 € in the East and 148,800 € in the West. Thus the relative wealth level of eastern households increased to 40 % over this time period. In the same fashion, one could see a convergence in wealth inequality as measured by the Gini coefficient. In 1993 East Germany featured a much higher wealth inequality with a Gini coefficient of 0.72 - compared to 0.63 in the West. In 2003 these figures had aligned: while the Gini in the East declined to 0.68 it increased

[7] As well as Hauser and Stein (2006) and Hauser (2009).

[8] He also look into the data for West Germany alone prior to reunification back till 1978 but notes that the data from those waves are not necessarily comparable.

for the West to 0.67. Somewhat surprisingly, while the income inequality is lower in the East than in the West, the wealth inequality is actually higher in the former GDR. Fuchs-Schündeln et al. (2010) use the same data but also look at the financial wealth of households. They find that inequality, as measured by the Gini coefficient, increases for both net total wealth and financial wealth over this time period and are roughly the same in 2003 (about 0.7). However, the increase is more pronounced for net financial wealth which started from a much lower level in 1978 (0.56 vs. 0.64).

2.2 GSOEP Wealth Module

The EVS exhibits several methodological shortcomings which makes it less than ideal for the assessment of the wealth situation of Germans according to Frick et al. (2010) and Grabka (2014). The main weakness of the EVS, in regard to the analysis of wealth, is that it is top-coded, i.e. it does not contain high-income households (those with a monthly household income of 18,000 € or more). High income households are usually also the households with the highest levels of net worth. As mentioned previously, such households make up a large fraction of the national wealth. Thus, leaving out these households will unquestionably distort the observed wealth distribution in the survey. Moreover, the EVS does not ask for business assets which typically make up a large part of the wealth for high net-worth households. For both these reasons Hauser and Stein (2006) suspect that they capture only the lower bound of the inequality and the level of wealth in Germany.[9] Finally, the EVS is not a random sample of the German population but a quota sample which makes it harder to look more closely at certain parts of the population, such as households in East Germany.

As of 2002 many of these issues have been addressed by the German Socio-Economic Panel (GSOEP), the longest running panel study of German households, which is comparable in its design to the Panel Study of Income Dynamics (PSID) for the USA. The survey has been established in 1984 as a representative sample of approximately 4,500 West German households and was extended to East Germany shortly before reunification. It is conducted annually by

[9] Also, they set negative wealth levels to zero when computing the Gini coefficient which further decreases the inequality measure.

the German Institute for Economic Research (DIW) and is currently in its 30th wave. At present it covers some 12,000 households with about 20,000 individuals. The GSOEP is the most extensive longitudinal micro data set of its kind in Germany and covers a wide range of socio-economic variables such as employment status, income sources, education level or attitudes towards different aspects of life. Since 2002 the GSOEP survey also collects data on a household's balance sheet in addition to its core questionnaire. Participants are asked about the amount of money invested in five different asset categories as well as their level of debt.[10] The wealth module is asked for every five years and currently encompasses three years (2002, 2007, 2012). Also since 2002 high income households are being oversampled in the GSOEP which leads to a large number of high net worth individuals in the survey. For more information on this process, see Schupp, Frick, Goebel, Grabka, Groh-Samberg and Wagner (2009).

Since the introduction of the wealth module in the GSOEP questionnaire, the responsible authors have published several descriptive papers outlining the wealth distribution in Germany as well as its development over time. Mostly these studies focus on net wealth on the individual level as the possibility to study wealth on this level is a unique element that distinguishes the GSOEP from many other surveys on the topic. Grabka and Frick (2007) describe the main results of the first wealth study in the 2002 wave of the GSOEP. Frick et al. (2010)[11] extend the analysis to the 2007 wealth questionnaire and focus on the change in the wealth distribution over this time period. Furthermore, their book gives a detailed account of the wealth situation in Germany prior to the turn of the century as well as an extensive overview of the wealth module itself.

The work by Frick and Grabka (2010) is interesting in the context of our analysis as it also covers the differences in the wealth distribution between East- and West Germany for 2002 and 2007. They find that in the 2002 GSOEP sample, the estimated average household wealth is about 10,000 € higher than the equivalent amount estimated via the 2003 EVS sample. Likewise the Gini coefficient is almost 10 percentage points higher (0.76) - the same applies to the share

[10] More specifically the survey asks for two types of housing assets - owner-occupied and other. Moreover, the levels of financial wealth, private insurance assets, business wealth and tangible assets are inquired. Finally, the levels of mortgage debt and other consumer debt are verified.

[11] See also: Frick and Grabka (2009a) and Frick and Grabka (2009b).

of wealth accrued by the top 10 %. More generally they find that the wealth distribution is much more spread out than expected. Thus, they hypothesize that previous studies based on the EVS have underestimated both the overall level of wealth as well as its concentration in the past. This is in line with the shortcomings of the EVS mentioned above. To compare the wealth distribution in East and West Germany, the authors resort to individual net wealth which is much lower than household net wealth and even more unequally distributed. Looking at per capita net wealth, the authors find that the average per capita net wealth in the West in the 2002 GSOEP sample is about 10 % lower than in the 2003 EVS sample. At the same time the EVS sample features an 18 % higher average wealth level for East Germany compared to the GSOEP. Thus, the wealth gap between the two countries is larger than previously thought.

Finally, Grabka and Westermeier (2014) look into the change of the distribution over all three sample years. They find that the overall structure of the wealth distribution in Germany remains largely unchanged between 2002 and 2012. The same holds true for the wealth gap between East and West Germany. For instance the share of average individual net wealth in the East compared to the West is 41 % (90,000 € to 36,700 €) in 2002 and increases only marginally to 44 % (94,000 € to 41,000 €) until 2012. Also the Gini coefficient is about four percentage points higher in the former GDR over this period of time. Hence, there does not seem to be a narrowing of the wealth gap between East and West Germany since the turn of the century and the overall level of the gap has remained pronounced for more than 20 years after reunification.

3 Data

3.1 Summary Statistics for Net Wealth

In the following we start our analysis by looking at the descriptive distribution of wealth in the three available wealth modules in 2002, 2007 and 2012. Our sample consists of roughly 20,000 adults per year (about 22,000, 20,000 and 18,000, respectively) of which about a fifth lives in East Germany. Table 1 illustrates the distribution of per capita net wealth for Germany as a whole over these years.

We find, in line with the results by Grabka and Westermeier (2014) on individual wealth, that the structure of the wealth distribution remains largely unchanged over the observed time period. Most statistical measures change only modestly from 2002 to 2012. It is striking, that for the lower part of the distribution up to the 30 % quantile we see a trend of decreasing or at least stagnating wealth levels. Starting from the 40 % quantile, we see a modest increase in the average net worth per household over time. Even though these contrasting developments in the lower and upper parts of the distribution suggest an increase in inequality over time, this is not reflected in the inequality measures. The Gini coefficient as well as different quantile ratios increase only modestly, if at all. All of this is also in line with the findings by Grabka and Westermeier (2014). It is also noteworthy that the wealth levels decrease from 2002 to 2007 for each quantile only to surge again in 2012. As just mentioned, for quantiles above the 30 % quantile net worth ends up even higher than in 2002. It is not clear what might have caused this dip in 2007 as the financial crisis had not even begun at that time. Moreover, Germany did not experience a substantial rise in home equity in the years preceding the crisis and thus there was no potential for a strong deterioration in housing prices. The ensuing drop in the German stock market could only affect relatively few Germans as most do not participate in this asset class.

Insert Table 1 about here.

The typical characteristics of wealth distributions, as described before, are reflected in Table 1. Due to the stability of the distribution over the observed time periods we will focus on the latest year in the following. In 2012 the average German holds net assets of almost 83,000 €. A person at the median, in contrast, is only worth around 31,000 €. Thus, the mean of the distribution is more than 2.5 times higher than the median. This emphasizes the right-skewness of the distribution. At the same time, we find that one in five people in our sample has no or even negative net worth. About 12 % of sample population report exactly zero net assets which is in line with the often reported spike at zero. How spread out the distribution is can be ascertained by looking at different quantiles and their ratios. For instance, a person at the lower quartile owns around 2,000 € in net assets while the corresponding value for her counterpart

at the upper quartile is about 100,000 €. The inter-quartile-ratio, therefore, is roughly 50 - meaning the wealth of someone at the upper quartile is more than 50 times higher than for people at the lower quartile in 2012. The wealth levels at the 90 % and 95 % quantile are about 200,000 € and 300,000 €, respectively. Thus, people in this part of the distribution own 100 times or rather 150 times the net wealth of their compatriots at the 25 % quantile. This high level of wealth inequality is also reflected by the Gini coefficient. It amounts to nearly 72 % for per capita net wealth while the corresponding value for per capita net income is only around 27 %. However, as expected, we find that per capita net wealth is still more evenly distributed compared to individual net wealth as reported by Grabka and Westermeier (2014). Nonetheless, they note that Germany, along with Austria, is the most unequal economy in this regard in the euro area.

We are chiefly interested in the difference between the wealth distributions in East and West Germany. For this purpose, Table 2 exhibits distributional measures of the per capita net wealth in both regions. The evolution of the wealth levels for the two regions largely follows that of Germany as a whole, albeit on very different levels. Over the observed time period, both East and West Germany exhibit mostly declining or stagnating wealth levels below the 30 % quantile of the distribution. Thus, many low net worth households in both parts of the country are actually worse of in 2012 compared to 2002. At the same time net wealth increase modestly for most of the upper part of the wealth distribution. Nevertheless, this increase in spread is rather modest and the general shape of the distributions remains largely unchanged as recognized by Grabka and Westermeier (2014).

Insert Table 2 about here.

Looking at the mean net wealth, we see that the average household member in West Germany in 2002 was on average worth 87,427 €. Until 2012 this amount had increased to 94,088 €. For the East the corresponding numbers are 36,703 € and 41,105 €, respectively. From this we can conclude two things: first of all, we observe a very pronounced mean wealth gap between East and West Germany. In 2002 an average West German citizens had almost 51,000 € more at her disposal than a comparable East German. Put differently, an average household member in the

East owned only about 42 % of the net asset position of an average person in the West. Second of all, we see that the relative mean wealth positions do not change much over the years. As can be seen in Table 3, the average wealth gap widens slightly to about 53,000 € in 2012. For the median wealth level we find a similar pattern: with about 12,000 € in 2002, the median wealth in East Germany is much lower compared to West Germany where it stands at 38,885 €. East Germans exhibit almost 27,000 € less net worth than westerners, which puts their relative wealth levels at only 31 % of the western levels. Until 2012, the median net worth increased in both regions to 13,645 € and 39,390 €, respectively, while the median wealth gap decreases to roughly 26,000 €. These findings apply more or less to the distribution as a whole. If we examine the distribution of net wealth along different quantiles, we find that eastern households hold less wealth at almost any point of the distribution and that this wealth gap remains relatively constant over time. Due to this distributional stability we will again focus on 2012 if not otherwise indicated. Up till the 25 % quantile one does not observe any noteworthy wealth gap, since household members in this vicinity own similarly low levels of wealth - in fact many own no wealth at all. Above this point, we see a rapidly increasing wealth gap. While western citizens at the 30 % quantile dispose of almost 4,000 € more than their eastern compatriots, this number rises quickly to around 42,000 € at the 60 % quantile and to more than 116,000 € at the 90% quantile. The ratio of eastern to western wealth also increases along the distribution - from 35 % at the 30 % quantile to 48 % at the 90 % quantile.

Another way to illustrate the wealth disparities between the two regions is to consider the disproportional low share of total wealth of eastern Germans. While eastern household constitute 21 % of the sample population, they only account for about 10 % of the overall net wealth in the sample. One can again contrast this with net income where the share of East Germans is 19 % and thus much closer to what one would expect under parity. The substantial difference in wealth is also evident when looking at the percentage of household members holding negative or zero net wealth. For West Germany about one in five (19.20 %) individuals hold non-positive levels of net worth while the corresponding number for the East is closer to one in four (23.99 %).

We find, similarly to Hauser (2010), that the distribution of wealth is more unequal in the East than in the West while the opposite is true for the distribution of income. However, the magnitude of this difference is generally not very large. As noted by Grabka and Westermeier (2014), the general inequality does not change much over time. The mostly larger quantile ratios for East Germany indicate that rich citizens in the East tend to accumulate higher multiples of wealth compared to their less fortunate fellow easterners than is the case in West Germany. For instance, the mean-to-median ratio is about 2.4 for West Germany but 3 for East Germany. This suggests a longer right tail for the East. Moreover, the Gini coefficient for East Germany is about 73 % while it is closer to 70.5 % for the West.

Insert Figure 1, Figure 2, Figure 3 and Figure 4 about here.

The differences in the distributions of wealth between East and West can also be seen visually. Figure 1 shows the histogram for East and West Germany, separately for each sample year. It is obvious that the distribution for East Germany exhibits higher densities at lower levels of net wealth. Especially the peak at zero net wealth is much more pronounced compared to West Germany. Starting from a value of about 50,000 €, the density for West Germany overtakes the eastern distribution. There is not much apparent differences between the distributions in the different years. The comparison via adaptive kernel density estimates in Figure 2 gives a very similar picture in this regard. Looking at the empirical CDFs in Figure 3, one can see the wealth gap opens after the 20 % quantile. Before that point, the two curves are largely indistinguishable due to the high number of household members with zero wealth in both parts of the country. It is also easy to see, that the gap increases at each quantile. Figure 4 illustrates this point again by plotting the inverse empirical cumulative density functions (also known as "parade of the dwarfs").

3.2 Composition of Net Wealth

Besides looking at the distribution of per capita net wealth itself, it is also insightful to assert how total net wealth is made up. As already mentioned, the GSOEP questionnaire asks for

information on six kinds of assets as well as three different types of debt. Table 5 entails information on mean participation rates for these wealth components separately for each region and year. From this we can see, for instance, that around one in two West Germans owns owner-occupied real estate and about one in four westerners holds mortgages associated with such housing wealth. The majority of people in both regions owns some kind of financial assets or insurance and pension wealth while only very few people hold business wealth.

With the purpose of the decomposition analysis in mind, it seems worthwhile to assert the differences in participation rates for these different wealth components across the country. Looking at Table 6, it is striking that the by far largest gap in ownership rates between the two regions is found for owner-occupied housing. In 2012, West Germans had a 12.5 percentage points higher probability to own a self-occupied real estate object than their eastern compatriots. Ownership of almost all other wealth components is also more common in West Germany as is evident from the positive gap in participation rates. The differences in participation rates are, however, usually not as pronounced as is the case for owner-occupied housing. Non-mortgage private debt constitutes a general exception in this regard. In 2012 East Germans were actually almost 5 % more likely to hold this type of debt compared to westerners.

Insert Table 5, Table 6, Table 7 and Table 8 about here.

Another way to look at this issue is to consider the amount of money that accrues to each of the wealth components. Yet, as we have seen in Table 5, most wealth components are not widely owned in the population. Therefore, even the median value is zero for most assets and all debt types. Consequently, we only consider mean asset and debt levels in the following. For this purpose, Table 7 and Table 8 portray the mean values and the mean differences for each sub-category, respectively. It is evident that the mean amount for any category, except for non-mortgage debt, is higher in West Germany. This difference is especially pronounced for home equity which is responsible for large parts of the average gap in net wealth. Out of the mean wealth gap of roughly 53,000 € in 2012, about 53 % (or 28,000 €) are associated with differences in net owner-occupied housing wealth. This is not entirely surprising as home equity constitutes the main asset in the portfolio of the average German. Around 53 % of the net worth

of the average investor in both regions is tied to home equity. Still, these findings emphasize the importance of real estate in the portfolio of the average investor and suggest that differences in real estate investments might help to explain large parts of the wealth gap.

3.3 Summary Statistics for Wealth Determinants

In the last section, we have established that a substantial wealth gap between the inhabitants of the former GDR and the western federal states remains even almost 25 years since reunification and shows little sign of diminishing. The main objective of this paper is to decompose this observed wealth gap into a part that can be attributed to observable differences in potential wealth determinants and an unexplained part that is associated with unobservable factors. These unobserved factors could, for instance, be omitted variables or institutional differences due to the different political systems before reunification. For this subsequent decomposition analysis it is paramount to first examine summary statistics of potential explanatory variables of wealth in our sample. We focus on variables that are likely to play an important role for the wealth formation of individuals. With regard to the explanatory power for the observed wealth gap, it is most interesting to assess how much the distributions of these potential wealth determinants differ between East and West Germany. We group the most promising variables into four main categories: permanent net income, variables associated with the average labor market situation of household members, the average education level within a household as well as socio-demographic and family background variables. Table 9 presents descriptions of the variables that we include in each of these categories. It is well known that income is among the most important determinants of wealth as a high discretionary income enables one to save and invest in different assets. According to the permanent income hypothesis, long-term income is more important in this regard than transitory income. To proxy for permanent income, we take the average over per capita net monthly income over the past five years. We include the average lifetime experience for full-time, part-time and unemployment in the model in order to account for the labor market experience of household members. Furthermore, we control for the share of members of a household that hold very prestigious jobs, are self-employed or retired. To

assess the average education level in a household, we include the share of household members who are highly educated (i.e. college graduates) or have some kind of vocational education (i.e. skilled workers or master craftsmen). Important socio-demographic variables in this context are the average age within a household, the share of male, married and foreign household members as well as persons with chronic health problems. For instance, younger household members are expected to possess smaller fortunes as they had only little time to accumulate wealth. Moreover, we control for the household size and the number of kids up to the age of 16 in the household as the need to finance children or other family members restricts the opportunity to accumulate assets. The social background of a person is likely to have a substantial effect on her financial situation, either indirectly via values learned or directly through financial contribution by close relatives. We include the share of individuals in the household with college educated parents to account for these effects. On the other hand we add dummy variables that indicate if any household member ever received any type of bequest and whether this inheritance was substantial.

Insert Table 9, Table 10, Table 11 and Table 12 about here.

Table 10 illustrates summary statistics for these variables for Germany as a whole pooled over all years and is included primarily for completeness as we are chiefly interested in differences between East and West Germany. For this reason, Table 11 features the mean levels of the explanatory factors for each region and year separately. Finally, the average differences in the wealth determinants between West and East Germany for each year are given in Table 12. We will again focus on the year 2012 since the regional differences remain steady over time as is evident from Table 12. From the tables we can see that a conspicuous difference exists for permanent income between the two regions. On average West Germans dispose of 1,375 € net monthly income while the equivalent figure for East Germans is only 1,153 €. This results in an extra 225 € that the average West German has at her disposal. This substantial income gap is likely associated with the observed wealth gap, especially if we keep in mind that such income differentials have persisted ever since the reunification. Looking at labor market experience, we find that an average household member in both regions spends by far the longest time of her

career in full-time employment. Furthermore, East Germans have three and a half years more full-time experience on average - probably due to the higher labor market participation rate of women in the GDR. At the same time the average duration spent in unemployment is double as high as for western household members. While East Germans are unemployed for about 22 month on average, the average West German spends only 10 month in unemployment. This is likely to have a negative effect on the relative financial situation of East Germans since one can hardly build up assets during periods of unemployment and maybe even has to deplete one's savings. We also see that East Germans are slightly better educated - probably due to deliberate political measures during the GDR intended to increase the college attendance of working class citizens. With regard to the social demographic characteristics the most striking difference is the share of foreign household members. While the share of eastern household members with a non-German citizenship is only 1 %, the respective figure for the West is 11 %. Given that individuals with migrant background tend to hold lower levels of wealth compared to natives, this is bound to have an effect on the distribution across the country. What is more, members of East German households are slightly older and less numerous. Referring to socio-demographic background, we find that households in East Germany are more likely to feature members whose parents are college educated. This can probably be attributed to the same reasons as for the case of the education level of the household members themselves. On the other hand, western households are likelier to exhibit members that have received an inheritance. They are even twice as likely to have received a substantial inheritance (10 % vs. 5 %) which should make them more prosperous. Overall about one in four households in Germany received some form of inheritance or gift.

4 Decomposition Analysis

The goal of decomposition analyses is to segment differences in distributional statistics for some variables between time-periods or sub-populations. It allows one to quantify the contribution of observable factors to the distributional differences between the groups under consideration for the variable of interest. In the following, we draw heavily from Fortin, Lemieux and Firpo (2011),

who provide an excellent overview of decomposition methods in econometrics. The starting point of any decomposition analysis is the observed difference for a given distributional statistic between the sub-populations of interest. We denote this overall gap as Δ_o^ν, where ν denotes the distributional statistic of choice. Due to its predominant role in econometric analyses, the statistic under consideration will often be the sample mean. In the context of this paper we are interested, among others, in the average wealth gap between East and West Germany.

The so-called aggregate decomposition is aimed at partitioning the overall difference into an "explained" and an "unexplained" part. The "explained" part is also called composition effect and denoted as Δ_x^ν. It represents the part of the overall gap that is associated with differences in the observable characteristics x. The "unexplained" part will be referred to as the wealth structure effect in the context of this paper and is labeled Δ_w^ν. It captures the contribution of all unobserved characteristics as well as differences in the conditional expected wealth function, i.e. how individuals in the two regions transfer the observed characteristics, such as income, into wealth. We write the the aggregate decomposition in the following form:

$$\Delta_o^\nu = \Delta_x^\nu + \Delta_w^\nu \tag{1}$$

It is insightful in itself to assess how much of the overall gap is associated with differences in the covariates as well as how much that share changes along the distribution. Yet, one is usually also interested in isolating the contribution of certain parts of the vector of wealth determinants. Regarding the application to the wealth gap it might, for instance, be interesting to know how much variations in permanent income help to explain disparities in per capita net wealth. This approach is known as detailed decomposition and usually requires stronger assumptions than the aggregate decomposition. It is important to note that the resulting effects should not be interpreted in a causal sense. Rather, they are of a descriptive nature and meant to give an understanding of the magnitude of the contribution of observable characteristics towards the observed difference in the variable of interest. Moreover, they are general equilibrium effects as they do not take into account the potential behavioral changes associated with them (see Biewen 2014).

When it comes to implementing the decomposition analysis, several methods exist, each which its own advantages and limitations. The most popular decomposition method is the Oaxaca-Blinder composition (see Fortin et al. 2011). It owes its popularity to its ease of implementation via OLS and the fact that it naturally allows for detailed composition. However, this method assumes a linear relationship between the variable of interest and the explanatory factors and only allows for the decomposition of mean differentials. This restriction is problematic when it comes to analyzing wealth distributions. As mentioned before, wealth distributions are generally very spread-out and right-skewed. Thus, the mean of the distribution is usually much higher than the median and not necessarily informative regarding the wealth of a typical person or household. More generally, one should try to get a more complete picture of the wealth gap, for instance by studying the difference at different quantiles of the distribution. Moreover, one is often interested in other characteristics of the wealth distribution apart from its level. For example, large fractions of the population exhibit non-positive net wealth. It is of interest to also examine the difference in this fraction between the groups under consideration. In addition, one is often interested in inequality-measures such as the Gini coefficient or the inter-quartile range. Thus, a technique that allows to decompose different summary measures of the distribution is favorable in this context.

A method making it possible to decompose disparities along the entire distribution with little assumptions was introduced by DiNardo, Fortin and Lemieux (1996). They propose a reweighting approach, similar to propensity score matching, where one aligns the distribution of the covariates between the two populations in order to identify the composition effect and the unexplained proportion. They first applied this method to analyze changes in the distribution of wages in the USA from 1973 to 1992. Due to its flexibility, the reweighting approach (henceforth DFL method) has become widely-used ever since (see Fortin et al. 2011). Usually, the DFL method is combined with adaptive kernel density estimation where one uses the reweighting factors during the smoothing procedure. The main advantages of this practice is that one can easily visualize the distributional differences and that it leads to variance-reduction of the estimators. However, Biewen (2001) stresses that the correct application of this smoothing

method is quite challenging. He continues by pointing out that one is often mainly interested in assessing the effect on certain summary measures of the distribution such as quantiles or inequality indices which are easily obtained from the unsmoothed distribution itself. Thus, smoothing is not necessary unless one is interested in the graphical display of the differences. As both Bover (2010) and Cowell, Karagiannaki and McKnight (2013) note, there is yet another important obstacle to the application of smoothing methods in the context of analyses of wealth distributions. As mentioned before, it is an empirical fact that most distributions exhibit a marked spike at zero net wealth. Bover (2010) emphasizes that the sensitivity of smoothing methods is exacerbated by the presence of such spikes. For this reason we will follow the same approach and focus on cumulative distribution functions (CDF). This makes it unnecessary to apply smoothing techniques as in the case of densities.

The main disadvantage of the DFL method, however, is that it cannot readily be applied to detailed decompositions. Generally one can only assess the contribution of dummy variables on the composition effect (see Fortin et al. 2011). Yet, Cobb-Clark and Hildebrand (2006) show how one can extend the original reweighting approach in a straight forward fashion in order to differentiate Δ_x^ν by groups of covariates. Still, one is constrained in the number of segments in which the composition effect can be partitioned. Therefore, one usually confines oneself to certain groups of covariates such as socio-demographic variables or labor market indicators (see Cobb-Clark and Hildebrand 2006, Bauer et al. 2011, Sierminska et al. 2010). Moreover, these detailed effects exhibit sequential ordering. Thus, a Shapley decomposition approach, where one averages over all possible sequences, has to be employed.[12]

We follow the course of action of the aforementioned papers and restrict ourselves to reweighting the majority group (in our case individuals situated in West Germany) with the characteristics of the comparison group (household members in East Germany). This is necessary due to compressed value ranges of certain variables in the East which would otherwise require extrapolation of values and potentially lead to extreme reweighting factors for certain observations. Hence, one only uses those sequences in which the main group is reweighted and averages over

[12] See Shorrocks (2013).

all the resulting sequences. In the following, we describe this decomposition method in more detail.

4.1 Aggregate Decompositon

We start out by explaining the mechanics of the aggregate decomposition via reweighting. In order to decompose the wealth distribution between East and West Germany, one has to control for observable factors that might help to explain the wealth differentials between the two regions. Therefore, we are mainly interested in the conditional distribution of wealth given these factors. Remembering that the unconditional distribution can be written as the integral over the conditional distributions weighted by the density of the conditioning factors, we can write the unconditional distribution for the average wealth of individuals in West Germany as:

$$F_{11} = F(w|W=1) = \int_x F(w|x, W=1) \cdot dF(x|W=1) \tag{2}$$

Here, wealth is denoted by a lower case w while the indicator for residency in West Germany is given by a capital W. Individuals living in West Germany are indicated by 1 while those situated in East Germany are labeled by 0. $F(w|x, W=1)$ is the conditional expected wealth function for individuals belonging to West German households while $dF(x|W=1)$ is the distribution of the wealth determinants in the same region. Consequentially, F_{11} denotes the distribution of wealth that prevails if both the wealth function and the distribution of observable factors are as in West Germany.[13] In the same fashion, the observed distribution for East German household members can be written as:

$$F_{00} = F(w|W=0) = \int_x F(w|x, W=0) \cdot dF(x|W=0) \tag{3}$$

Now one can easily compute the overall difference in wealth between the two regions for a specific summary measure ν by taking the difference between the corresponding statistics for the two observed distributions: $\Delta_o^\nu = \nu(F_{11}) - \nu(F_{00})$. To decompose this difference, one needs

[13] Here, we make use of the following equality for the distribution of the covariates: $\mathrm{d}F(x|W=1) = f(x|W=1)\mathrm{d}x$.

to estimate a corresponding counterfactual distribution first. The counterfactual distribution of wealth for West Germany is the distribution one would obtain if the conditional wealth function remained as in the West whereas the distribution of observable characteristics was as in the East. This counterfactual distribution is given by:

$$F_{10} = \int_x F(w|x, W = 1) \cdot dF(x|W = 0) \tag{4}$$

It is not immediately obvious how one can compute such a counterfactual distribution. DiNardo et al. (1996) argue that a straight forward way to obtain the counterfactual distribution is to reweight the distribution of covariates in the majority group in such a way that it matches the corresponding distribution found in the comparison population. This can be seen by rewriting the counterfactual for the net wealth distribution in West Germany as:

$$F_{10} = \int_x \left[\frac{dF(x|W = 0)}{dF(x|W = 1)}\right] \cdot F(w|x, W = 1) \cdot dF(x|W = 1) \tag{5}$$

We see immediately that this expression is just the observed distribution for the West multiplied by the factor $dF(x|W = 0)/dF(x|W = 1)$. This term is called the reweighting factor and will be denoted henceforth by $\Psi(x)$. It ensures that the distribution of x is the same in both populations. Therefore, we can write the counterfactual distribution slightly more compact as:

$$F_{10} = \int_x \Psi(x) \cdot F(w|x, W = 1) \cdot dF(x|W = 1) \tag{6}$$

The main question is how to estimate the reweighting factor, which is the ratio of two multivariate density functions. DiNardo et al. (1996) show that the reweighting factor can be written in terms of ratios of probabilities via Bayes' theorem:

$$\Psi(x) = \frac{dF(x|W = 0)}{dF(x|W = 1)} = \frac{P(x|W = 0)}{P(x|W = 1)} = \frac{P(W = 1|x)}{P(W = 0|x)} \cdot \frac{P(W = 0)}{P(W = 1)} \tag{7}$$

In our case, $P(W = 1|x)$ is the probability of living in West Germany conditional on the wealth determinants in x. $P(W = 0|x)$ gives the same measure for East Germany while $P(W =$

0) and $P(W = 1)$ represent the unconditional probabilities of living in East or West Germany, respectively. The probabilities needed for the reweighting factor can be readily estimated from a given sample. For instance, $\widehat{P}(W = 0)$ and $\widehat{P}(W = 1)$ are just the observed fraction of individuals living East and West Germany in our sample. In order to estimate the conditional probabilities, one can do so either non-parametrically or by imposing more structure on the relationship - usually via a probit or logit model. The non-parametric approach offers the advantage that the relationship between factors can be modeled with a maximum of flexibility. This point is stressed by Barsky, Bound, Charles and Lupton (2002) who use such a reweighting scheme to decompose the wealth gap between black and white households in the United States with respect to household income. They argue that such flexibility is especially crucial in their case due to the unknown relationship between household wealth and income. This relation is likely highly non-linear and thus hard to parametrize. However, any non-parametric method suffers from the well-known curse of dimensionality, i.e. the inability to model the influence of several covariates in such a context. For this very reason, Barsky et al. (2002) do not control for other relevant variables besides household income. This is a major limitation of the non-parametric approach. Therefore, most studies using reweighting decomposition employ parametric specifications (see Fortin et al. 2011). In this paper, we use logit models to estimate the conditional regional probabilities. Thus, the estimator for the reweighting factor is written as:

$$\widehat{\Psi}_x = \frac{\widehat{P}(W = 1|x)}{\widehat{P}(W = 0|x)} \cdot \frac{\widehat{P}(W = 0)}{\widehat{P}(W = 1)} \tag{8}$$

With this estimator, we can compute the counterfactual wealth distribution for western individuals if these had the same distribution of characteristics as their eastern compatriots, F_{10}. Now, we can finally put all these concepts together to illustrate the implementation of the decomposition method in Equation 1. We write the decomposed wealth gap between West and East Germany for a distributional statistic ν as:

$$\underbrace{\nu(F_{11}) - \nu(F_{00})}_{\Delta_o^\nu} = \underbrace{\nu(F_{11}) - \nu(F_{10})}_{\Delta_x^\nu} + \underbrace{\nu(F_{10}) - \nu(F_{00})}_{\Delta_w^\nu} \tag{9}$$

Here $\nu(F_{11}) - \nu(F_{10})$ represents the composition effect because only the distribution of the x vector is changed while the conditional wealth functions are the same. $\nu(F_{01}) - \nu(F_{00})$, on the other hand, is the wealth structure effect since the distributions of wealth determinants are identical but the conditional wealth functions differ from each other. In this fashion, we can assess how much of the observed gap along the wealth distribution can be attributed to the combined influence of observable factors.

4.2 Detailed Decompositon

As previously mentioned, we are often not interested in the composition effect Δ_x^ν alone but also in the contribution of specific elements of x to the differences in relative wealth positions. In the context of this paper it is reasonable to follow the approach by previous papers on this topic[14] and split the vector of covariates into four sub-vectors: permanent income (y), variables associated with the average labor market situation of a household (l), the average education level within a household (e) and a vector of socio-demographic background variables (d). All these factors play an important role in the formation of wealth. Our aim is to attribute parts of the composition effect to these factors such that $\Delta_x^\nu = \Delta_y^\nu + \Delta_l^\nu + \Delta_e^\nu + \Delta_d^\nu$. As for the aggregate decomposition, we start out by writing the observed wealth distribution in West Germany in terms of conditional distributions with respect to our four subsets of the wealth determinants:

$$F_{11111} = \int_y \int_l \int_e \int_d F(w|y,l,e,d,W=1) \cdot dF(y|l,e,d,W=1)$$
$$\cdot dF(l|e,d,W=1) \cdot dF(e|d,W=1) \cdot dF(d|W=1) \tag{10}$$

Here, the conditional wealth distribution for West Germany, $F(w|y,l,d,W=1)$, is identical to $F(w|x,W=1)$ in Equation 2 for the aggregate case as $x = \{y,l,e,d\}$. However, unlike before this conditional wealth function is not only weighted by the joint distribution of all covariates in the West, $dF(x|W=1)$. Instead, we have a density for each subset of variables. These weight-

[14] See Cobb-Clark and Hildebrand (2006), Sierminska et al. (2010) and Bauer et al. (2011).

ing factors are ordered in a sequence that is economically plausible. For instance, ones income depends on ones labor market experience, education and general socio-demographic background. Therefore, we consider the distribution of the particular subset conditional on the underlying covariates. In this case $dF(y|l, e, d, W = 1)$ is the conditional income function for western household members given their labor market situation, educational attainment and social background. The observed distribution for eastern individuals can be written in an analogous fashion:

$$F_{00000} = \int_y \int_l \int_e \int_d F(w|y, l, e, d, W = 0) \cdot dF(y|l, e, d, W = 0) \cdot dF(l|e, d, W = 0) \cdot dF(e|d, W = 0) \cdot dF(d|W = 0) \tag{11}$$

Because we have split the vector of covariates into several subgroups of covariates, we can theoretically compute counterfactual distributions with respect to any single one of these subgroups as well as any combination of these components. Consider, for instance, the counterfactual distribution of per capita net wealth of West Germans that would occur if everything was as in West Germany but the distribution of permanent income, conditional on the other covariates, was as in East Germany:

$$F_{10111} = \int_y \int_l \int_e \int_d F(w|y, l, e, d, W = 1) \cdot dF(y|l, e, d, W = 0) \cdot dF(l|e, d, W = 1) \cdot dF(e|d, W = 1) \cdot dF(d|W = 1) \tag{12}$$

As for the aggregate case, we can approach this problem by reweighting the observed distribution via an appropriate factor, which in this case is the ratio of two conditional densities:

$$F_{10111} = \int_y \int_l \int_e \int_d \left[\frac{dF(y|l,e,d,W=0)}{dF(y|l,e,d,W=1)}\right] \cdot F(w|y,l,e,d,W=1) \cdot dF(y|l,e,d,W=1)$$
$$\cdot dF(l|e,d,W=1) \cdot dF(e|d,W=1) \cdot dF(d|W=1) \tag{13}$$

When we rewrite this factor via Bayes' law we can see that it is very similar to the aggregate reweighting factor in Equation 8. However, instead of a ratio of unconditional probabilites as in the aggregate case, the second part of the factor is ratio of conditional probabilities here. In the first ratio we condition on all covariates, including permanent income. For the second ratio we do not condition on income. In this manner one isolates the relationship between income and region of residence. We denote this reweighting factors as $\Psi(y|l,e,d)$ to write the counterfactual distribution more compactly.

$$\Psi(y|l,e,d) = \frac{dF(y|l,e,d,W=0)}{dF(y|l,e,d,W=1)} = \frac{P(W=1|y,l,e,d)}{P(W=0|y,l,e,d)} \cdot \frac{P(W=0|l,e,d)}{P(W=1|l,e,d)} \tag{14}$$

$$F_{10111} = \int_y \int_l \int_e \int_d \Psi(y|l,e,d) \cdot F(w|y,l,e,d,W=1) \cdot dF(y|l,e,d,W=1)$$
$$\cdot dF(l|e,d,W=1) \cdot dF(e|d,W=1) \cdot dF(d|W=1) \tag{15}$$

Similarly, we obtain the counterfactual distribution F_{11011}, which results from setting the western labor market history to its eastern equivalent, by employing the reweighting factor $\Psi(l|e,d) = \frac{P(W=1|l,e,d)}{P(W=0|l,e,d)} \cdot \frac{P(W=0|e,d)}{P(W=1|e,d)}$. On the other hand, if one only changes the vector of socio-demographic background to obtain the counterfactual distribution F_{11110}, the reweighting factor $\Psi(d) = \frac{P(W=1|d)}{P(W=0|d)} \cdot \frac{P(W=0)}{P(W=1)}$ is needed. In such a way, any kind of counterfactual distribution can be calculated. For instance, in order to assess the impact of simultaneously changing y, e and d while holding l fixed, i.e. F_{10100}, we nee to compute $\Psi(y|l,e,d) \cdot \Psi(e|d) \cdot \Psi(d)$. To obtain the decomposition effects, we have to subtract distributional statistics from each other which stem

from distributions that differ in one factor only. There are several possibilities how this can be accomplished. One possible decomposition sequence is the following:

$$\underbrace{\nu(F_{11111}) - \nu(F_{00000})}_{\Delta_o^\nu} = \underbrace{\nu(F_{11111}) - \nu(F_{10111})}_{\Delta_y^\nu} + \underbrace{\nu(F_{10111}) - \nu(F_{10011})}_{\Delta_l^\nu} + \underbrace{\nu(F_{10011}) - \nu(F_{10001})}_{\Delta_e^\nu}$$
$$+ \underbrace{\nu(F_{10001}) - \nu(F_{10000})}_{\Delta_d^\nu} + \underbrace{\nu(F_{10000}) - \nu(F_{00000})}_{\Delta_w^\nu} \tag{16}$$

For example, $\nu(F_{11111}) - \nu(F_{10111})$ gives us the effect of changing permanent income because the two distributions involved differ only in this respect. Actually, there are $n!$ different sequences, in which such a decomposition can be computed, where n is the number of subsets in x plus one. In this case there are $5! = 120$ different sequences to decompose the wealth gap. However, only 24 of these possible sequences depend entirely on the conditional wealth function in West Germany (i.e. involve counterfactual distributions of the form F_{1xxxx}). One can show that Δ_o^ν, Δ_x^ν and Δ_w^ν are the same for each of these 24 decompositions, in the spirit of the aggregate decomposition. However, the subset effects (Δ_y^ν, Δ_l^ν, Δ_e^ν and Δ_d^ν) can be different for each decomposition. The reason for this is that the counterfactual distributions depend on which factor is changed first. For this reason this approach is called sequential decomposition as it depends on the sequence of changes. Thus, one reports the effect for each subset averaged over all possible decomposition sequences. This is known as Shapley decomposition as introduced by Shorrocks (2013).

5 Empirical Results

In the following we present the results of the decomposition analyses. We focus again on the latest year available, 2012, since the results for the other two sample years are qualitatively similar. The corresponding tables can be found in the appendix. When reporting the decomposition results, we will omit the ν subscript at this point for the sake of clarity.

5.1 Results of Aggregate Decomposition

We start by looking at the aggregate decomposition and concentrate on the overall explanatory power of our wealth determinants, i.e. how much of the observed gap can be attributed to observable differences in the characteristics of eastern and western citizens. Firstly, Table 13 presents summary statistics for per capita net wealth in East and West Germany as already reported in Table 2 of Section 3.1. Secondly, it shows the counterfactual distribution, i.e. the distribution of wealth in West Germany that would arise if western citizens had the same distribution of the observable characteristics that prevails in the East. The CDF's for these three distributions are depicted in Figure 5. Moreover, Table 13 displays the already familiar observed wealth gap (Δ_o) together with the part of the gap that is associated with the covariates (Δ_x) as well as the part that cannot be explained by these factors (Δ_w). In addition to these figures we report bootstrap standard errors to assess whether the estimates are statistically significant. Table 14 displays the overall gap, the composition effect and the wealth structure effect for selected summary measures only along with the relative share of the overall gap corresponding to each component.

Insert Table 13 and Table 14 about here.

The first interesting information in these tables is the counterfactual distribution of net wealth. We can see, for instance, that the average West German has total net assets of about 94,000 €. If we reweight the characteristics of the population in the West to match those in the East, we find that an average person would then hold only around 73,500 €. Thus, the more unfavorable composition of the covariates in East Germany is associated with a reduction of the average net wealth by about 20,500 €. Yet, the counterfactual mean wealth is still much closer to the original figure of the West than to that of the East, which is only about 41,000 €. As a rule of thumb, the closer the reweighted distribution for the West is to the distribution in the East, the larger the part of the gap that is associated with the covariates. Looking at Figure 5, we can see how the relative position of the counterfactual distribution changes along the levels of net wealth. As we have seen in Section 3.1, there is little difference between the distributions

for East and West Germany up to the lower quartile due to the high numbers of individuals with no net worth. Above this point one can observe that at first the CDF of the counterfactual distribution is very close to that for the eastern population. As one moves up in the distribution, however, the counterfactual CDF moves closer and closer to the western CDF. This indicates that the potential wealth determinants help to explain a good amount of the observed wealth differences in the lower part of the distribution but have little explanatory power in the upper part. This is quite reasonable as large fortunes can come about in many ways. Thus, they are not easily reduced to a small number of underlying factors.

By looking at the decomposition results, one can more easily quantify the contribution of the covariates to the wealth gap along the distribution. For instance, we quickly note that out of the nearly 53,000 € mean wealth gap, around 20,500 € are associated with the composition effect while about 32,500 € are due to the wealth structure effect. Thus, the wealth determinants are corresponding to only 38.74 % of the mean wealth gap. Due to the lack of substantive wealth differences below the 25 % quantile, only relatively small values exist for Δ_x and Δ_w over this range. In addition, the bootstrap standard errors are quite large in this area so that the effects are not significant at the 5 % level. Starting from the lower quartile we observe a positive wealth gap which is widening substantially with increasing levels of net wealth. Between the lower quartile and the median the composition effect is as large as or even larger than the observed wealth gap itself. The wealth structure effect in this region is therefore negative. However, Δ_w is usually not statistically significant in this vicinity. As a result, one cannot say whether the share accounted for by Δ_x is actually larger than 100 %. As one moves further up the distribution, it becomes evident that the observable factors contribute less and less to the overall gap. While the variables in the x vector are associated with 78.29 % of the median wealth gap (about 20,000 € out of roughly 25,750 €), this proportion declines quickly and constitutes only about 34 % of the gap at the upper quartile (around 22,700 € of 66,600 €). The share associated with the composition effect stabilizes after the 75 % quantile at about one third of the overall gap. For instance, at the 90 % quantile about 33,700 €, or 29 % of an overall gap of 116,300 €, are due to Δ_x. For the distributional measures, such as the Gini coefficient or the ratio of 90 % quantile to

median, we find very large relative composition effects. In fact, the contribution of the covariates is much higher than the gap actually observed. For instance, the relative contribution of the wealth determinants to the difference between the Gini coefficient in the two regions is 215.80 %. Thus, the composition effect is more than twice as high as the observed gap. The results also suggest that the share of individuals with no positive net worth would be even higher in the counterfactual distribution than in the East - more than 26 % compared to the actual share of about 19 % in the West and roughly 24 % in the East. Decomposing such small differences is, however, usually quite difficult. This could also mean that the higher observed inequality in the East could actually be much worse if people had not accommodated themselves to the prevalent conditions.

5.2 Results of Detailed Decomposition

To assess in more detail how these figures come about, we examine the results for the detailed decomposition in Table 15 and Table 16. As before, we concentrate mainly on Table 16 where the share of the overall gap is given for selected summary measures. What is striking in this regard is that for all wealth levels the contribution of educational attainment (Δ_e) as well as socio-demographic background (Δ_d) on the observed gap are consistently negative. This means by assigning the prevailing distribution of these variables in the East to the western population, one would actually increase the wealth gap. The share of the overall gap due to differences in socio-demographic background is mostly in the range of minus 5 % and minus 10 %. For the lower half of the distribution, however, this effect is not statistically significant. The absolute magnitude of the effect of education differences is much larger in the lower half of the distribution and it is nearly always statistically significant. Yet, this effect quickly decreases in size so that its relative share in the upper part of the distribution is usually smaller than that of Δ_d. The combined contribution of these two categories varies somewhere between about minus 25 % at the lower quartile and minus 11 % at the upper quartile. Together they are associated with about minus 7,200 € of the mean wealth gap, which is equivalent to a share of approximately minus 13.5 %.

Even though one cannot assess the contribution of individual variables in this framework, some potential reasons for these findings come to mind. First of all, as we have seen in Section 3.3, the education level of household members in the East as well as that of their parents are on average higher than for those in the West. Higher educational attainment is usually associated with higher levels of wealth.[15] Therefore, it is reasonable to assume that if one applied the East German distribution of these variables to West Germany, it would result in higher levels of net worth. A similar argument can be brought forth for the share of foreign nationals. Bauer et al. (2011) note that native Germans exhibit much higher levels of wealth compared to those inhabitants with a foreign nationality. West Germany has an 11 times higher share of non-German nationals than the eastern federal states. Attributing this lower eastern figure to West Germany should therefore lead to higher wealth levels in the counterfactual distribution. Such relationships might explain these negative decomposition results.

Insert Table 15 and Table 16 about here.

The effects of income differentials (Δ_y) and different labor market outcomes (Δ_l), in contrast, are positive, usually quite substantial in magnitude and highly statistical significant. Unsurprisingly, given the negative effects of Δ_e and Δ_d, their combined contribution is even higher than the total composition effect. Looking at the mean wealth gap, we find that in fact more than half of the observed gap is due to the combined effect of income differentials and labor market differences. Roughly 16,700 € of the difference can be traced back to higher incomes in the West. This is equivalent to 31.59 % of the overall gap or rather 81.54 % of the composition effect. With about 11,000 € the contribution of the differences in labor market histories is somewhat smaller but still presents 20.70 % of Δ_o and 53.44 % of Δ_x. The two effects are usually of the same size although the income effect is larger for high levels of wealth. The combined share of the two categories declines along the distribution and ranges from 138 % at the lower quartile to about 45 % at the 90 % quantile. It is harder to make definitive statements for the distributional measures due to the extreme nature of the effects involved. As for the quantiles, Δ_y and Δ_l are by far the most important contributing factors in this context. These two effects are roughly

[15] See Sierminska et al. (2010).

comparable in size and each as large as the overall wealth gap itself. The magnitudes of Δ_e and Δ_d, on the other hand, are again rather small. All this indicates that the explanatory power of certain parts of the wealth determinants is actually higher than the aggregated figures suggest. The fact that the direction of the individual contributions go into different directions is lost when one looks at the aggregated effects only.

5.3 The Role of Home-Equity

As we have seen in Table 7, owner-occupied real estate constitutes the main asset in the portfolio of the average German. Having said that, a study by the ECB's Eurosystem Household Finance and Consumption Network (HFCS 2013) finds that Germany and Austria are the countries in the euro zone with the lowest share of home-owners. The study further suggests that this low propensity to hold self-utilized real estate is related to the relative low levels of median net wealth in these two countries as well as their relative high levels of wealth inequality. This holds true in particular in comparison to countries like Spain. From Section 3.2 we know that the chief difference in the investment behavior of East and West Germans lies in their propensity to own a home, which is 12.50 percentage points lower in the East. Thus, it is reasonable to assess whether such a relationship between differences in home-ownership rates and wealth levels can also be found within Germany.

To evaluate the potential effect of differentials in the propensity for home-ownership, we include a housing dummy in the decomposition analysis in addition to the usual wealth determinants. More specifically, we model the decision to own a home as being conditional on ones permanent income, labor market history, education and socio-demographic background. Although this approach makes intuitive sense, it is problematic to use home-ownership in such a way as it is itself a part of net wealth. Nevertheless, we still proceed in this fashion as we primarily seek to explore this relationship in a descriptive manner.

Insert Table 17 and Table 18 about here.

Table 17 reports the results for this extension of the original analysis.[16] We find that the housing effect (Δ_h) is positive but its magnitude is usually much lower than that of permanent income (Δ_y) and labor market situation (Δ_l). Including home-ownership increases the composition effect at the mean by about 10 percentage points. This is equivalent to a third (half) of the size of the effect of permanent income (labor market status). At the median the housing dummy increases the explanatory power of Δ_x by about 23 percentage points. This is, however, still only slightly more than half the magnitude of the other two effects. For the measures of inequality and the share of individuals with no positive net worth the pattern is similar: the direction of the effect is the same as for Δ_y and Δ_l but considerably smaller in size.

Another way to look at this issue is to decompose the participation rates and wealth levels for home equity directly. In this fashion we can estimate how much of the mean difference in owner-occupied housing is corresponding to differences in the distribution of covariates. The resulting effects are given in Table 18. We consider the participation rates for home equity as well as mortgages associated with such real estate. In addition, we look into the mean gross and net wealth levels invested in owner-occupied housing along with the gross value of home loans. Finally, net housing wealth for self-utilized property is scrutinized. What is most notable in Table 18, is the discrepancy between the results for the mean wealth levels and the participation rates. The decomposition effects for both gross and net home equity are quite similar to those for net wealth as a whole. In either case the relative share of the composition effect is of the same order of magnitude as for total net wealth (40.00 % and 33.13 %, respectively). Furthermore, we also see relative large positive effects for income and labor market situation while the contributions of education level and social background are negative and much smaller in magnitude. The gap in participation rates for home equity and corresponding home loans, on the other hand, are much better explained by the differentials in observable characteristics. For instance, nearly 11 percentage points, out of the 12.48 percentage point gap in the participation rates for home ownership, can be attributed to differences in the covariates. This disparity between the relative magnitudes of the composition effect for the participation rates and the actual mean property

[16] For reasons of clarity we subsume the effects for educational attainment and socio-demographic background under the category Δ_{de} at this point since they have the same direction and a similar magnitude.

values is quite striking. It might suggest that the different propensities for owning real estate in the two parts of Germany are only part of the story. Evidently, other factors such as the different price levels for housing property do play a role as well. From all this we can cautiously conclude that the different home ownership rates seem related to the wealth gap between East and West Germany. However, the magnitude of the housing effect Δ_h is much smaller than the unconditional summary statistics suggest.

5.4 Results by Cohort

The results presented so far apply to the overall population in both regions. Yet, it is likely that various groups experienced the German reunification in different ways. Individuals who were younger or not even born at that time might have been affected differently by the consequences of this event than older Germans who experienced the disparate cultural and political conditions in the opposing systems for most of their life.

To examine whether younger Germans differ from their elder countrymen in regard to the composition of the wealth gap, we conduct a separate analysis with individuals belonging to households for which no member is older than 45 years, only.[17] Of course this cut-off is somewhat arbitrary but we examine different cut-off criteria and find that the results are qualitatively unchanged. We conduct this analysis only for the year 2012 as by that time enough people in this cohort had reasonable time to build up meaningful net asset positions. Table 19 gives a detailed account of the aggregate decomposition effects across the distribution while Table 20 presents results for the detailed decomposition for selected summary statistics along with the share of the overall wealth gap.

Insert Table 19 and Table 20 about here.

The first thing to notice in these tables are the much lower wealth levels found for younger Germans compared to the overall population. Their mean wealth level in the West, for example, is less than half the level of the western population as a whole - less than 45,400 € compared to more than 94,000 € overall. For the East the situation is very similar even if the difference is

[17] About 26 % of the sample population fall into this category.

not as pronounced - the average East German in the younger cohort owns around 27,400 € in net assets while this figure is about 41,100 € for all East Germans. These lower levels of wealth can be found at any point in the distribution. Consequently, the wealth gap for the younger cohort is generally also much lower than for the overall population. For example, the mean wealth gap for this group is only about 18,000 € - compared to an overall mean wealth gap of around 53,000 €. These findings are not unexpected as people in the younger cohort simply had less time to build up assets. For the same reason a much higher share of individuals with non-positive net worth is found in both regions: more than 26 % of young westerners have no or negative net assets compared to only about 19 % for all West Germans. Furthermore, the wealth distribution for young Germans is also very unequally distributed. For example, the Gini coefficient for young East Germans is 85.47 % while it is only 72.99 % for all easterners.

Another striking finding is that a very high share of the observed wealth gap among young Germans can be attributed to the composition effect. The mean composition effect, for instance, is about 12,000 € or 66.23 % of the mean wealth gap for the younger cohort. This stands in contrast to the corresponding share in the general population which is only 38.74 %. Interestingly, this high explanatory power of the wealth determinants is rather stable along the entire wealth distribution and does not decline as strong as for the entire population. The covariates are associated with 81.50 % of the median wealth gap of about 6,700 € and still 67.48 % of the 42,000 € gap at the 90 % quantile.

Two potential reasons for these results come to mind: younger Germans might be better comparable as they have more similar attitudes and face an identical institutional framework. Thus, it could be easier to attribute parts of the observed wealth gap to differences in wealth determinants. On the other hand, the higher share of Δ_x might be due to the fact that at lower levels of wealth the covariates are generally associated with a larger part of the wealth gap - as we have seen in Section 5.1. Therefore, one might very well conclude that the large relative composition effects for the young can simply be ascribed to the smaller size of the wealth gap at any point in the distribution.

This argument does not really stand up to scrutiny, however. If we compare wealth gaps with similar magnitudes, we find that the relative share of Δ_x is usually higher for the younger cohort even at relatively high levels of wealth. Taking the 95 % quantile of the young cohort as an example, we find that 72.52 % of the 54,650 € gap is attributable to differences in the covariates. For the quantitatively similar wealth gap (56,600 €) at the 70 % quantile of the overall distribution the corresponding share is less than 60 %. As we have seen before, the share of the mean wealth gap for the overall distribution (53,000 €) was even as low as 38.74 %.

To assess how these large composition effects come about, we examine the effects of each category as given in Table 20. We find that the effects for the socio-demographic background (Δ_d) and the educational attainment (Δ_e) are both positive for individuals in young households in contrast to the effects for the overall population. This might reflect, among others, that the educational qualifications of younger Germans are usually directly comparable - something that is not necessarily the case for older Germans. The contribution of the socio-demographic background to the wealth gap is usually larger than that of the education level. For the upper half of the distribution it is even larger than the income effect. However, neither Δ_e nor Δ_d are usually significant. The largest effect by far is the contribution of the labor market situation of an individual. This effect is usually much larger than the effect of permanent income and lies mostly between 30 % and 40 % of the overall composition effect. This could be due to the fact that the income distribution is more compressed for younger individuals. Thus, income differentials in this group are usually less pronounced than for the population as a whole. Success at the labor market, on the other hand, is much more important during the early stages of one's career. Therefore, times of unemployment, which are much more common among young East Germans, are likely to have a much more detrimental effect on the financial situation of young adults. The income effect, while smaller than for the general population, still contributes a substantive share to the wealth gap and is statistically significant for most parts of the distribution.

All in all, we find that the wealth gap between younger Germans is smaller and more closely associated with differentials in the observable characteristics. The labor market situation seems to play the largest role in this respect.

6 Conclusion

In this paper, we have investigated the gap in net wealth that still exists between East and West Germany today. Using data from the German Socio-Economic Panel, we can see that even in 2012, the latest year available, this gap is quite substantial and proportional to the level of wealth at different points of the wealth distribution. By employing decomposition estimation via reweighting procedures, we find that observable differences in potential wealth determinants such as income or labor market situation are associated with varying levels of the observed wealth gap. We find that for the lower part of the distribution, most of the gap can be attributed to the wealth determinants. However, that share declines quickly for higher wealth levels and accounts for only about a third. Moreover, we find that of the four categories of wealth determinants considered (permanent income, labor market outcomes, education attainment and socio-demographic background), income differentials and differences in labor market situation are associated with the largest part of the wealth gap. Educational attainment and social background, on the other hand, have small negative effects - meaning aligning them between the two parts of the country would even widen the observed gap. This is likely due to factors which are actually more favorable for East Germany such as its low share of foreign nationals and its generally higher level of education.

We also scrutinize the role of owner occupied housing wealth in this context. West Germans have a much higher propensity to own a home compared to their eastern compatriots. As this type of asset constitutes the largest part of wealth of the average investor, it seems natural to assume that this difference in home-ownership rates is partly responsible for the higher level of wealth in West Germany. We indeed find a sizable effect of home-ownership on the wealth gap. However, the effect of home-ownership is quantitatively much smaller than those of income or labor market differentials. This suggests that other factors, such as the generally lower level of housing prices in East Germany, play an important role in this regard.

Finally, we ascertain whether younger Germans are affected differently by the German re-unification. We find that the younger cohort exhibits much lower wealth differences than the overall population. We also find that the relative composition effect is usually much larger than

the one we found for the entire population. This could simply be due to the smaller magnitude of the wealth gap in this group as it is generally easier to explain lower levels of debt. However, we find that similar magnitudes of wealth differentials are associated with higher shares of the composition effect compared to the general population. Especially labor market outcomes play a most important role here, probably because success at the labor market is much more important at early stages of one's career.

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A Tables

Table 1: Descriptive Statistics for Netwealth in Germany

Stats	**2002**	**2007**	**2012**
Mean	76,483	78,689	82,770
p1	-18,040	-20,228	-21,569
p5	-2,519	-3,585	-3,180
p10	0	0	0
p20	263	0	0
p25	2,075	1,730	1,967
p30	4,896	4,069	4,845
p40	12,482	11,871	13,732
p50	28,728	25,605	31,344
p60	52,236	48,356	54,850
p70	80,000	77,230	86,750
p75	96,739	94,733	104,280
p80	118,033	118,140	125,550
p90	192,625	198,051	200,327
p95	289,260	300,000	301,754
p99	601,366	680,727	754,295
% Nonpos.	19.30	20.48	20.23
% Neg.	6.68	8.45	8.55
% Zero	12.62	12.03	11.68
Gini	71.28	73.49	71.92
p75p50	3.37	3.70	3.33
p90p50	6.71	7.74	6.40
p75p25	46.73	55.21	53.03
N	22,813	20,728	18,151

Table 2: Detailed summary statistics for Netwealth

Netwealth	West			East		
	2002	**2007**	**2012**	**2002**	**2007**	**2012**
Mean	87,427	91,671	94,088	36,703	32,233	41,105
p1	-17,033	-20,228	-23,200	-20,673	-20,991	-14,150
p5	-2,331	-3,481	-3,230	-3,113	-3,883	-3,133
p10	0	0	0	0	0	-65
p20	500	119	270	0	0	0
p25	2,617	2,269	2,695	1,010	473	353
p30	5,540	5,065	6,075	2,500	2,014	2,110
p40	16,453	15,842	18,121	5,958	5,860	6,020
p50	38,885	34,208	39,390	12,117	11,287	13,645
p60	64,975	61,382	68,284	22,547	20,483	26,060
p70	93,560	93,384	100,475	38,318	33,416	43,915
p75	111,570	113,612	119,260	47,499	42,281	52,651
p80	135,445	138,399	140,555	58,004	52,081	68,213
p90	213,574	227,970	223,721	99,838	85,456	107,457
p95	322,465	333,063	345,900	144,734	121,341	158,314
p99	658,930	749,185	832,383	285,833	260,600	301,800
% Neg.	6.49	8.23	8.18	7.39	9.23	9.92
% Zero	12.31	11.49	11.03	13.74	13.99	14.07
% Nonpos.	18.80	19.72	19.20	21.13	23.21	23.99
Gini	69.47	71.63	70.51	74.10	74.34	72.99
p75p50	2.87	3.32	3.03	3.92	3.75	3.86
p90p50	5.49	6.67	5.68	8.25	7.58	7.88
p75p25	42.71	50.41	44.45	47.04	89.96	207.89
N	16,956	15,238	13,355	5,857	5,490	4,796

Table 3: Absolute Wealth Gap

Stats	**2002**	**2007**	**2012**
Mean	50,724	59,438	52,983
p1	3,640	763	-9,050
p5	782	401	-97
p10	0	0	65
p20	500	119	270
p25	1,607	1,796	2,342
p30	3,040	3,051	3,965
p40	10,495	9,981	12,101
p50	26,768	22,921	25,745
p60	42,428	40,898	42,224
p70	55,243	59,968	56,560
p75	64,071	71,331	66,609
p80	77,441	86,318	72,342
p90	113,736	142,514	116,264
p95	177,731	211,722	187,586
p99	373,097	488,585	530,584
% Nonpos.	-2.33	-3.49	-4.78
% Neg.	-0.90	-0.99	-1.74
% Zero	-1.42	-2.50	-3.04
Gini	-4.63	-2.71	-2.48
p75p50	-1.05	-0.43	-0.83
p90p50	-2.75	-0.91	-2.20
p75p25	-4.34	-39.55	-163.44

Table 4: Definition of Wealth Components

Wealth Component	**Definition**
House Own	Gross wealth held in the form of owner-occupied real estate
House Other	Gross wealth invested in other types of real estate
Financial Wealth	Gross wealth held in the form of savings accounts, bond, stocks and the like
P&I Wealth	Gross wealth held in the form of life insurances, building loan contracts, private pension schemes and the like
Business Wealth	Gross wealth held as owner of a commercial enterprise
Tangible Assets	Wealth held in tangible form such as gold, jewelery and the like
Gross Wealth	Total gross wealth: sum of all above categories
Mortgage Own	Mortgage associated with owner-occupied real estate
Mortgage Other	Mortgage coupled with other types of real estate wealth
Other Debt	Any type of debt that is not a mortgage such as credit card debt
Total Debt	Sum of all these debt types
Net House Own	Owner-occupied real estate wealth - associated mortgages
Net House Other	Other types of real estate wealth - associated mortgages
Total Net Wealth	Total gross wealth - total debt

Table 5: Mean Participation Rates

	West			**East**		
	2002	**2007**	**2012**	**2002**	**2007**	**2012**
House Own	50.62	48.61	52.15	36.36	36.52	39.67
House Other	14.82	15.45	15.93	10.05	10.53	10.39
Financial Wealth	54.73	58.80	59.10	55.40	55.69	53.63
P&I Insurance	61.16	66.19	64.04	62.03	62.47	62.10
Business Wealth	7.74	7.62	8.18	7.31	6.52	7.44
Tangibe Assets	14.56	10.25	11.47	7.95	6.08	4.80
Mortgage Own	25.41	24.22	24.64	18.74	18.24	17.10
Mortgage Other	6.78	7.04	7.03	2.78	3.74	4.07
Other Debt	17.06	23.70	23.65	20.44	27.14	28.43
N	16,956	15,238	13,355	5,857	5,490	4,796

Table 6: Mean Gap in Participation Rates by Year

Stats	**2002**	**2007**	**2012**
House Own	14.26	12.09	12.48
Houese Other	4.77	4.91	5.55
Financial Wealth	-0.67	3.11	5.48
P&I Wealth	-0.87	3.72	1.94
Business Wealth	0.42	1.10	0.74
Tangible Wealth	6.61	4.16	6.66
Mortgage Own	6.68	5.98	7.54
Mortgage Other	4.00	3.30	2.96
Other Debt	-3.38	-3.44	-4.77

Table 7: Mean Asset Values

	West			**East**		
	2002	**2007**	**2012**	**2002**	**2007**	**2012**
House Own	57,934	56,308	60,680	24,660	21,976	27,188
House Other	17,200	18,515	16,485	4,402	3,357	4,599
Financial Wealth	10,891	13,167	14,542	6,326	6,242	7,708
P&I Wealth	9,718	11,889	10,066	5,160	5,636	6,289
Business Wealth	6,341	7,912	7,904	4,207	3,143	4,232
Tangible Assets	1,534	1,110	1087	824	305	338
Gross Wealth	103,618	108,903	110,763	45,580	40,659	50,354
Mortgage Own	9,567	10,372	10,755	5,357	5,211	5,228
Mortgage Other	4,448	4,407	3,799	1,243	1,188	1,765
Other Debt	2,176	2,453	2,121	2,278	2,028	2,257
Total Debt	16,190	17,232	16,675	8,877	8,426	9,250
Net House Own	48,367	45,937	49,925	19,303	16,765	21,960
Net House Other	12,752	14,108	12,685	3,159	2,169	2,835
Total Net Wealth	87,427	91,671	94,088	36,703	32,233	41,105
N	16,956	15,238	13,355	5,857	5,490	4,796

Table 8: Mean Gap for Assets by Year

Stats	**2002**	**2007**	**2012**
House Own	33,274	34,332	33,492
House Other	12,798	15,158	11,885
Finanncial Wealth	4,564	6,926	6,834
P&I Wealth	4,557	6,253	3,776
Business Wealth	2,134	4,769	3,672
Tangible Wealth	710	806	749
Gross Wealth	58,038	68,243	60,409
Mortgage Own	4,210	5,161	5,527
Mortgage Other	3,205	3,220	2,035
Other Debt	-102	425	-136
Total Debt	7,313	8,805	7,425
Net House Own	29,064	29,171	27,965
Net House Other	9,593	11,938	9,851
Net Wealth	50,724	59,438	52,983

Table 9: Definition of Wealth Determinants

Variable	Description
Permanent Income	Average per capita net monthly income over the past 5 years
Exp. FT	Average household full-time working experience in years
Exp. PT	Average household part-time working experience in years
Exp. UE	Average household unemployment experience in years
High Job	Share of household members with the highest possible job autonomy
Selfemp	Share of household members selfemployed
Retired	Share of household members retired
Middle Vocation	Share of household members with vocational training
High Vocation	Share of household members with high level of vocational training (Abitur + Ausbildung| Meister)
College	Share of household members with college degree
Age	Average age of household members
Male	Share of male household members
Married	Share of married household members
Foreign	Share of foreign household members
Number of Kids	Number of Kids in household
HH Size	Household size
Health Problems	Share of household members with serious health problems
Father College	Share of household members with college educated father
Mother College	Share of household members with college educated mother
Ever Inheritance	Any household member ever received an inheritance, gift or the like
High Inheritance	Any household member received an inheritance or the like of at least 25,000 €

Table 10: Wealth Determinants Pooled

Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Permanent Income	1,306.66	759.6	98	73,363
Exp. Ft	17.78	11.63	0	60
Exp. Pt	2.83	4.54	0	46
Exp. Ue	0.88	1.92	0	37
High Job	0.02	0.11	0	1
Selfemp	0.05	0.18	0	1
Retired	0.27	0.42	0	1
Middle Vocation	0.48	0.41	0	1
High Vocation	0.12	0.27	0	1
College	0.17	0.33	0	1
Years Schooling	11.89	2.34	7	18
Age	49.54	16.78	17	102
Male	0.47	0.29	0	1
Married	0.55	0.45	0	1
Foreign	0.08	0.25	0	1
Number of Kids	0.41	0.79	0	8
HH Size	2.48	1.25	1	13
Health Problems	0.19	0.33	0	1
Father College	0.13	0.34	0	1
Mother College	0.07	0.26	0	1
Ever Inheritance	0.26	0.44	0	1
High Inheritance	0.09	0.28	0	1
N	61,692			

Table 11: Wealth Determinants by Year

Netwealth	**West**			**East**		
	2002	**2007**	**2012**	**2002**	**2007**	**2012**
Permanent Income	1,342.26	1,361.16	1,374.71	1,123.16	1,081.38	1,153.14
Exp. FT	16.8	17.18	17.59	20.37	19.92	21.03
Exp. PT	2.51	2.98	3.66	1.84	2.09	2.43
Exp. UE	0.58	0.78	0.82	0.98	1.53	1.83
High Job	0.02	0.02	0.02	0.01	0.01	0.01
Selfemp	0.05	0.05	0.05	0.05	0.05	0.06
Retired	0.26	0.27	0.27	0.31	0.31	0.32
Middle Vocation	0.49	0.48	0.48	0.51	0.51	0.52
High Vocation	0.13	0.13	0.13	0.11	0.11	0.12
College	0.13	0.16	0.19	0.21	0.23	0.24
Years Schooling	11.55	11.83	12.08	12.06	12.24	12.46
Age	48.81	49.62	50.87	49.14	49.87	52.17
Male	0.47	0.47	0.47	0.48	0.47	0.47
Married	0.60	0.56	0.56	0.53	0.49	0.51
Foreign	0.10	0.11	0.11	0.02	0.01	0.01
Number of Kids	0.50	0.42	0.37	0.39	0.30	0.31
HH Size	2.58	2.50	2.46	2.44	2.34	2.22
Health Problems	0.18	0.19	0.18	0.19	0.21	0.20
Father College	0.10	0.12	0.14	0.15	0.15	0.17
Mother College	0.05	0.06	0.08	0.10	0.12	0.14
Ever Inheritance	0.25	0.27	0.27	0.22	0.24	0.24
High Inheritance	0.09	0.11	0.10	0.04	0.04	0.05
N	16,956	15,238	13,355	5,857	5,490	4,796

Table 12: Gap for Wealth Determinants

Stats	**2002**	**2007**	**2012**
Permanent Income	221.72	283.07	224.74
Exp. FT	-3.52	-2.77	-3.48
Exp. PT	0.69	0.91	1.26
Exp. UE	-0.41	-0.76	-1.04
High Job	0.01	0.01	0.01
Selfemp	0.00	0.00	-0.01
Retired	-0.05	-0.05	-0.05
Middle Vocation	-0.02	-0.03	-0.04
High Vocation	0.02	0.02	0.00
College	-0.08	-0.07	-0.06
Years Schooling	-0.50	-0.41	-0.38
Age	-0.33	-0.29	-1.34
Male	-0.01	0.00	0.00
Married	0.07	0.07	0.04
Foreign	0.08	0.09	0.10
Number of Kids	0.12	0.13	0.05
HH Size	0.15	0.16	0.24
Health Problems	-0.01	-0.02	-0.02
Father College	-0.04	-0.03	-0.03
Mother College	-0.05	-0.06	-0.05
Ever Inheritance	0.04	0.04	0.03
High Inheritance	0.06	0.07	0.05
N	22,813	20,728	18,151

Table 13: Aggregate Decomposition for 2012
Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	**West**	**Counterfactual**	**East**	Δ_o	Δ_x	Δ_w
Mean	94,088.36	73,561.62	41,104.91	52,983.45	20,526.74	32,456.70
	[2,770.71]	[3,392.33]	[2,080.86]	[3,640.87]	[3,103.96]	[4,086.77]
p5	-3,230.00	-3,840.00	-3,132.60	-97.40	610.00	-707.40
	[797.82]	[965.40]	[515.74]	[854.52]	[839.84]	[1,046.70]
p10	0.00	0.00	-65.00	65.00	0.00	65.00
	[0.00]	[125.72]	[271.35]	[271.35]	[125.72]	[326.28]
p20	270.00	0.00	0.00	270.00	270.00	0.00
	[228.34]	[0.00]	[0.00]	[228.34]	[228.34]	[0.00]
p25	2,695.00	0.00	353.00	2,342.00	2,695.00	-353.00
	[532.68]	[78.71]	[430.84]	[705.55]	[524.60]	[440.31]
p30	6,075.00	1,008.00	2,110.00	3,965.00	5,067.00	-1,102.00
	[558.39]	[402.17]	[460.36]	[670.86]	[595.63]	[599.33]
p40	18,121.00	5,978.30	6,020.00	12,101.00	12,142.70	-41.70
	[1,825.35]	[1,482.44]	[690.10]	[2,011.26]	[1,606.34]	[1,659.84]
p50	39,390.00	19,235.00	13,644.67	25,745.33	20,155.00	5,590.33
	[1,799.58]	[2,722.73]	[1,389.83]	[2,211.99]	[2,611.46]	[2,894.33]
p60	68,284.15	43,209.46	26,059.90	42,224.25	25,074.68	17,149.57
	[2,982.14]	[4,074.19]	[2,556.01]	[3,551.62]	[3,829.47]	[4,481.56]
p70	100,475.00	77,750.00	43,914.67	56,560.33	22,725.00	33,835.33
	[2,700.19]	[5,017.91]	[2,431.78]	[3,192.46]	[4,989.33]	[5,084.05]
p75	119,260.00	96,583.34	52,650.80	66,609.20	22,676.67	43,932.54
	[3,448.97]	[4,072.60]	[2,625.04]	[4,102.44]	[4,474.17]	[4,416.52]
p80	140,555.00	117,260.70	68,213.34	72,341.66	23,294.30	49,047.37
	[3,217.51]	[5,500.54]	[4,231.21]	[5,022.18]	[5,806.80]	[6,500.96]
p90	223,720.59	190,030.00	107,456.66	116,263.93	33,690.60	82,573.34
	[7,127.75]	[8,709.05]	[4,002.73]	[8,268.28]	[10,847.18]	[10,014.29]
p95	345,900.00	288,187.00	158,313.59	187,586.41	57,713.00	129,873.40
	[15,760.63]	[21,033.95]	[11,687.56]	[21,638.88]	[19,943.52]	[24,567.28]
Gini	70.51	75.85	72.99	-2.48	-5.34	2.87
	[0.85]	[1.40]	[1.32]	[1.73]	[1.29]	[2.06]
% Neg.	8.18	9.26	9.92	-1.74	-1.08	-0.66
	[0.52]	[0.98]	[0.92]	[1.17]	[0.82]	[1.45]
% Zero	11.03	17.13	14.07	-3.04	-6.10	3.06
	[0.40]	[1.20]	[0.78]	[0.87]	[1.09]	[1.41]
% Nonpos.	19.20	26.38	23.99	-4.78	-7.18	2.39
	[0.66]	[1.55]	[1.22]	[1.50]	[1.39]	[2.08]
p90p50	5.68	9.88	7.88	-2.20	-4.20	2.00
	[0.26]	[1.46]	[0.83]	[0.91]	[1.37]	[1.58]
p75p50	3.03	5.02	3.86	-0.83	-2.00	1.16
	[0.11]	[0.66]	[0.36]	[0.35]	[0.64]	[0.75]

Table 14: Aggregate Decomposition for 2012

Figures in brackets represent contribution of the respective category to the overall wealth gap in percent. Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	Δ_o	Δ_x	Δ_w
Mean	52,983.45	20,526.74	32,456.70
	(100.00)	(38.74)	(61.26)
	[3,640.87]	[3,103.96]	[4,086.77]
p25	2,342.00	2,695.00	-353.00
	(100.00)	(115.07)	(-15.07)
	[705.55]	[524.60]	[440.31]
p40	12,101.00	12,142.70	-41.70
	(100.00)	(100.34)	(-0.34)
	[2,011.26]	[1,606.34]	[1,659.84]
p50	25,745.33	20,155.00	5,590.33
	(100.00)	(78.29)	(21.71)
	[2,211.99]	[2,611.46]	[2,894.33]
p60	42,224.25	25,074.68	17,149.57
	(100.00)	(59.38)	(40.62)
	[3,551.62]	[3,829.47]	[4,481.56]
p75	66,609.20	22,676.67	43,932.54
	(100.00)	(34.04)	(65.96)
	[4,102.44]	[4,474.17]	[4,416.52]
p90	116,263.93	33,690.60	82,573.34
	(100.00)	(28.98)	(71.02)
	[8,268.28]	[10,847.18]	[10,014.29]
Gini	-2.48	-5.34	2.87
	(100.00)	(215.80)	(-115.80)
	[1.73]	[1.29]	[2.06]
% Nonpos.	-4.78	-7.18	2.39
	(100.00)	(150.03)	(-50.03)
	[1.50]	[1.39]	[2.08]
p90p50	-2.20	-4.20	2.00
	(100.00)	(191.04)	(-91.04)
	[0.91]	[1.37]	[1.58]

Table 15: Detailed Decomposition for 2012
Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	Δ_o	Δ_x	Δ_y	Δ_l	Δ_e	Δ_d
Mean	52,983.45	20,526.74	16,737.37	10,969.15	-3,193.39	-3,986.39
	[3,641.46]	[3,124.01]	[1,682.63]	[2,310.12]	[777.17]	[1,605.80]
p5	-97.4	610	230.52	472.74	-213.86	120.60
	[856.98]	[835.00]	[309.49]	[499.80]	[200.08]	[346.60]
p10	65	0	7.98	7.98	-3.02	-12.95
	[277.04]	[109.95]	[62.79]	[79.49]	[22.20]	[56.65]
p20	270	270	243.75	243.75	-162.64	-54.86
	[228.34]	[228.34]	[125.55]	[121.65]	[55.98]	[76.67]
p25	2,342.00	2,695.00	1,552.54	1,700.04	-449.1	-108.47
	[699.58]	[521.57]	[294.20]	[326.42]	[131.59]	[194.85]
p30	3,965.00	5,067.00	2,886.19	3,027.65	-786	-60.84
	[671.87]	[590.34]	[383.47]	[423.85]	[235.05]	[339.05]
p40	12,101.00	12,142.70	7,084.70	7,155.04	-1,479.41	-617.63
	[2,009.89]	[1,625.45]	[792.03]	[895.82]	[398.73]	[877.02]
p50	25,745.33	20,155.00	11,714.44	11,918.37	-2,123.47	-1,354.35
	[2,226.39]	[2,656.81]	[1,313.02]	[1,713.04]	[782.14]	[1,504.92]
p60	42,224.25	25,074.68	15,769.21	14,804.70	-2,674.04	-2,825.19
	[3,542.90]	[3,817.28]	[1,933.82]	[2,430.84]	[974.46]	[1,833.45]
p70	56,560.33	22,725.00	15,970.42	13,394.18	-2,572.16	-4,067.44
	[3,185.80]	[5,026.20]	[2,073.12]	[2,965.19]	[860.20]	[1,962.08]
p75	66,609.20	22,676.67	16,800.19	13,378.59	-2,909.23	-4,592.88
	[4,118.25]	[4,559.43]	[2,188.92]	[2,640.03]	[814.59]	[1,999.61]
p80	72,341.66	23,294.30	19,252.04	13,689.38	-3,771.07	-5,876.05
	[5,053.53]	[5,801.74]	[2,688.43]	[2,973.63]	[1,038.03]	[2,386.63]
p90	116,263.93	33,690.60	32,138.25	19,611.41	-6,704.35	-11,354.71
	[8,233.45]	[10,685.18]	[6,513.20]	[5,790.39]	[2,145.84]	[3,598.56]
p95	187,586.41	57,713.00	66,193.47	21,947.80	-13,683.63	-16,744.65
	[21,720.59]	[19,782.96]	[12,824.81]	[14,539.63]	[4,417.31]	[6,990.42]
Gini	-2.48	-5.34	-2.13	-3.29	0.41	-0.33
	[1.73]	[1.27]	[0.46]	[0.79]	[0.18]	[0.49]
% Nonpos.	-4.78	-7.18	-4.10	-4.22	1.30	-0.16
	[1.49]	[1.39]	[0.49]	[0.71]	[0.26]	[0.54]
% Neg.	-1.74	-1.08	-0.65	-1.00	0.20	0.37
	[1.19]	[0.82]	[0.29]	[0.39]	[0.15]	[0.35]
% Zero	-3.04	-6.10	-3.45	-3.22	1.11	-0.53
	[0.86]	[1.08]	[0.38]	[0.60]	[0.20]	[0.42]
p75p50	-0.83	-2.00	-1.05	-1.19	0.29	-0.06
	[0.35]	[0.64]	[0.31]	[0.35]	[0.21]	[0.20]
p90p50	-2.20	-4.20	-2.04	-2.50	0.54	-0.20
	[0.90]	[1.37]	[0.70]	[0.73]	[0.42]	[0.43]

Table 16: Detailed Decomposition for 2012

Figures in brackets represent contribution of the respective category to the overall wealth gap in percent. Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	Δ_o	Δ_x	Δ_y	Δ_l	Δ_e	Δ_d
Mean	52,983.45	20,526.74	16,737.37	10,969.15	-3,193.39	-3,986.39
	(100.00)	(38.74)	(31.59)	(20.70)	(-6.03)	(-7.52)
	[3,641.46]	[3,124.01]	[1,682.63]	[2,310.12]	[777.17]	[1,605.80]
p25	2,342.00	2,695.00	1,552.54	1,700.04	-449.10	-108.47
	(100.00)	(115.07)	(66.29)	(72.59)	(-19.18)	(-4.63)
	[699.58]	[521.57]	[294.20]	[326.42]	[131.59]	[194.85]
p40	12,101.00	12,142.70	7,084.70	7,155.04	-1,479.41	-617.63
	(100.00)	(100.34)	(58.55)	(59.13)	(-12.23)	(-5.10)
	[2,009.89]	[1,625.45]	[792.03]	[895.82]	[398.73]	[877.02]
p50	25,745.33	20,155.00	11,714.44	11,918.37	-2,123.47	-1,354.35
	(100.00)	(78.29)	(45.50)	(46.29)	(-8.25)	(-5.26)
	[2,226.39]	[2,656.81]	[1,313.02]	[1,713.04]	[782.14]	[1,504.92]
p60	42,224.25	25,074.68	15,769.21	14,804.70	-2,674.04	-2,825.19
	(100.00)	(59.38)	(37.35)	(35.06)	(-6.33)	(-6.69)
	[3,542.90]	[3,817.28]	[1,933.82]	[2,430.84]	[974.46]	[1,833.45]
p75	66,609.20	22,676.67	16,800.19	13,378.59	-2,909.23	-4,592.88
	(100.00)	(34.04)	(25.22)	(20.09)	(-4.37)	(-6.90)
	[4,118.25]	[4,559.43]	[2,188.92]	[2,640.03]	[814.59]	[1,999.61]
p90	116,263.93	33,690.60	32,138.25	19,611.41	-6,704.35	-11,354.71
	(100.00)	(28.98)	(27.64)	(16.87)	(-5.77)	(-9.77)
	[8,233.45]	[10,685.18]	[6,513.20]	[5,790.39]	[2,145.84]	[3,598.56]
Gini	-2.48	-5.34	-2.13	-3.29	0.41	-0.33
	(100.00)	(215.80)	(85.95)	(132.93)	(-16.60)	(13.51)
	[1.73]	[1.27]	[0.46]	[0.79]	[0.18]	[0.49]
% Nonpos.	-4.78	-7.18	-4.10	-4.22	1.30	-0.16
	(100.00)	(150.03)	(85.80)	(88.24)	(-27.28)	(3.26)
	[1.49]	[1.39]	[0.49]	[0.71]	[0.26]	[0.54]
p90p50	-2.20	-4.20	-2.04	-2.50	0.54	-0.20
	(100.00)	(191.04)	(92.68)	(113.55)	(-24.47)	(9.29)
	[0.90]	[1.37]	[0.70]	[0.73]	[0.42]	[0.43]

Table 17: Detailed Decomposition including Home-Equity
Figures in brackets represent contribution of the respective category to the overall wealth gap in percent. Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	Δ_o	Δ_x	Δ_h	Δ_y	Δ_l	Δ_{de}
Mean	52,983.45	26,145.41	5,459.04	16,514.34	11,031.07	-6,859.05
	(100.00)	(49.35)	(10.30)	(31.17)	(20.82)	(-12.95)
	[3,624.02]	[3,023.39]	[1,053.50]	[1,647.20]	[2,213.28]	[1,835.55]
p25	2,342.00	2,695.00	464.80	1,322.03	1,434.98	-526.81
	(100.00)	(115.07)	(19.85)	(56.45)	(61.27)	(-22.49)
	[707.73]	[529.53]	[139.88]	[276.48]	[285.34]	[215.93]
p40	12,101.00	13,531.60	2,811.16	6,251.38	6,397.57	-1,928.52
	(100.00)	(111.82)	(23.23)	(51.66)	(52.87)	(-15.94)
	[2,014.20]	[1,565.04]	[752.16]	[748.59]	[850.08]	[861.57]
p50	25,745.33	25,135.00	5,970.82	10,996.67	11,298.91	-3,131.40
	(100.00)	(97.63)	(23.19)	(42.71)	(43.89)	(-12.16)
	[2,205.81]	[2,699.34]	[1,369.63]	[1,228.99]	[1,582.40]	[1,432.06]
p60	42,224.25	33,151.02	8,381.66	15,130.73	14,767.71	-5,129.09
	(100.00)	(78.51)	(19.85)	(35.83)	(34.97)	(-12.15)
	[3,443.56]	[4,407.13]	[2,209.51]	[1,830.25]	[2,174.43]	[1,951.61]
p75	66,609.20	30,096.47	7,358.92	16,680.19	13,550.28	-7,492.92
	(100.00)	(45.18)	(11.05)	(25.04)	(20.34)	(-11.25)
	[4,101.12]	[4,975.14]	[1,752.72]	[2,161.30]	[2,667.79]	[2,371.08]
p90	116,263.93	43,240.60	10,175.33	31,043.90	19,640.82	-17,619.45
	(100.00)	(37.19)	(8.75)	(26.70)	(16.89)	(-15.15)
	[8,381.46]	[10,732.51]	[2,689.14]	[6,018.20]	[5,876.17]	[4,209.53]
Gini	-2.48	-7.25	-1.74	-2.19	-3.36	0.04
	(100.00)	(292.90)	(70.25)	(88.53)	(135.86)	(-1.73)
	[1.73]	[1.35]	[0.36]	[0.48]	[0.80]	[0.55]
% Nonpos.	-4.78	-8.56	-1.27	-4.18	-4.29	1.18
	(100.00)	(178.92)	(26.56)	(87.43)	(89.59)	(-24.66)
	[1.51]	[1.45]	[0.26]	[0.50]	[0.70]	[0.64]
p90p50	-2.20	-7.08	-1.67	-2.57	-3.06	0.22
	(100.00)	(321.63)	(75.72)	(116.63)	(139.08)	(-9.80)
	[0.91]	[2.74]	[0.68]	[0.97]	[1.07]	[0.52]

Table 18: Decomposition of Home-Equity

Figures in brackets represent contribution of the respective category to the overall wealth gap in percent. Figures in square brackets present the standard error from 500 bootstrap samples.

Wealth Component	Δ_o	Δ_x	Δ_y	Δ_l	Δ_e	Δ_d
House Own Yes	12.48	10.91	4.09	5.50	-0.22	1.55
	(100.00)	(87.42)	(32.75)	(44.09)	(-1.79)	(12.38)
	[1.15]	[0.98]	[0.43]	[0.58]	[0.18]	[0.53]
Mortgage Own Yes	7.54	8.08	2.64	3.66	-0.22	1.99
	(100.00)	(107.15)	(35.02)	(48.58)	(-2.91)	(26.46)
	[0.92]	[0.66]	[0.33]	[0.40]	[0.13]	[0.37]
House Own	33,492.16	13,397.88	8,932.16	7,307.36	-1,101.31	-1,740.33
	(100.00)	(40.00)	(26.67)	(21.82)	(-3.29)	(-5.20)
	[1,398.92]	[1,414.67]	[886.10]	[1,086.64]	[398.54]	[779.90]
Mortgage Own	5,526.66	4,132.29	1,872.13	2,065.16	-188.04	383.03
	(100.00)	(74.77)	(33.87)	(37.37)	(-3.40)	(6.93)
	[527.88]	[376.34]	[171.42]	[261.82]	[79.28]	[185.68]
Net House Own	27,965.51	9,265.59	7,060.03	5,242.20	-913.27	-2,123.36
	(100.00)	(33.13)	(25.25)	(18.75)	(-3.27)	(-7.59)
	[1,273.89]	[1,252.29]	[817.84]	[1,019.74]	[341.61]	[758.05]

Table 19: Aggregate Decomposition for young Cohort
Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	**West**	**CF**	**East**	Δ_o	Δ_w	Δ_x
Mean	45,396.63	33,461.42	27,374.74	18,021.89	6,086.68	11,935.21
	[3,521.36]	[3,297.91]	[3,882.27]	[5,191.99]	[5,220.59]	[3,701.23]
p5	-8,880.00	-7,950.00	-4,980.50	-3,899.50	-2,969.50	-930
	[1,084.52]	[1,578.14]	[1,464.89]	[1,835.25]	[2,015.07]	[1,361.13]
p10	-1,890.60	-2,136.67	-2,094.40	203.8	-42.27	246.07
	[637.26]	[651.93]	[847.03]	[1,094.16]	[1,035.03]	[679.87]
p20	0.00	0.00	0.00	0.00	0.00	0.00
	[0.00]	[15.03]	[29.85]	[29.85]	[36.17]	[15.03]
p25	0.00	0.00	0.00	0.00	0.00	00.00
	[65.71]	[0.00]	[0.00]	[65.71]	[0.00]	[65.71]
p30	990.00	0.00	0.00	990.00	0.00	990.00
	[385.25]	[101.84]	[116.55]	[409.91]	[154.82]	[367.64]
p40	4,770.00	1,600.00	1,325.67	3,444.33	274.33	3,170.00
	[729.82]	[465.39]	[591.98]	[974.00]	[797.82]	[739.06]
p50	10,303.10	4,790.00	3,538.80	6,764.30	1,251.20	5,513.10
	[1,430.59]	[1,016.68]	[979.92]	[1,595.25]	[1,366.49]	[1,530.26]
p60	19,610.00	9,960.00	8,526.40	11,083.60	1,433.60	9,650.00
	[2,600.27]	[1,546.26]	[1,685.86]	[3,279.15]	[1,982.55]	[2,491.34]
p70	36,262.43	20,752.07	19,520.00	16,742.43	1,232.07	15,510.37
	[3,668.72]	[3,221.71]	[4,470.41]	[6,117.30]	[5,181.28]	[3,443.95]
p75	49,926.67	28,773.33	27,570.70	22,355.97	1,202.63	21,153.33
	[3,646.96]	[4,480.42]	[5,922.55]	[6,811.98]	[6,860.93]	[4,401.91]
p80	66,180.30	42,730.00	39,016.67	27,163.63	3,713.33	23,450.30
	[4,920.66]	[7,085.31]	[5,502.07]	[6,768.61]	[7,858.95]	[6,268.20]
p90	121,250.00	92,894.70	79,230.00	42,020.00	13,664.70	28,355.30
	[8,021.98]	[10,473.16]	[12,235.85]	[14,686.26]	[15,219.66]	[8,389.83]
p95	182,200.00	142,570.16	127,550.00	54,650.00	15,020.15	39,629.85
	[14,248.95]	[15,366.18]	[12,803.88]	[20,237.74]	[20,827.63]	[17,037.50]
Gini	82.03	87.92	85.47	-3.44	2.45	-5.88
	[2.23]	[2.17]	[3.70]	[4.82]	[4.32]	[2.14]
% Nonpos.	26.09	31.14	32.31	-6.21	-1.17	-5.05
	[1.48]	[2.00]	[2.73]	[3.15]	[3.33]	[1.86]
% Neg.	14.27	16.03	17.05	-2.78	-1.03	-1.76
	[1.28]	[1.58]	[2.27]	[2.65]	[2.87]	[1.40]
% Zero	11.82	15.11	15.25	-3.43	-0.14	-3.29
	[0.82]	[1.38]	[1.77]	[1.95]	[2.11]	[1.14]
p75p50	4.86	6.03	7.82	-2.97	-1.79	-1.17
	[0.63]	[1.14]	[2.24]	[2.17]	[2.11]	[1.29]
p90p50	11.80	19.53	22.52	-10.72	-2.99	-7.73
	[1.58]	[4.72]	[6.28]	[6.09]	[8.17]	[4.65]

Table 20: Detailed Decomposition for young Cohort

Figures in brackets represent contribution of the respective category to the overall wealth gap in percent. Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	Δ_o	Δ_x	Δ_y	Δ_l	Δ_e	Δ_d
Mean	18,021.89	11,935.21	2,413.52	5,668.02	2,190.02	1,663.65
	(100.00)	(66.23)	(13.39)	(31.45)	(12.15)	(9.23)
	[5,191.99]	[3,701.23]	[1,551.84]	[2,793.17]	[1,091.82]	[1,755.42]
p30	990.00	990.00	401.76	527.29	42.16	18.78
	(100.00)	(100.00)	(40.58)	(53.26)	(4.26)	(1.90)
	[409.91]	[367.64]	[149.94]	[234.86]	[93.77]	[180.47]
p40	3,444.33	3,170.00	835.42	1,557.02	261.57	515.99
	(100.00)	(92.04)	(24.25)	(45.21)	(7.59)	(14.98)
	[974.00]	[739.06]	[338.25]	[443.80]	[247.43]	[412.59]
p50	6,764.30	5,513.10	1,427.49	2,473.78	525.09	1,086.74
	(100.00)	(81.50)	(21.10)	(36.57)	(7.76)	(16.07)
	[1,595.25]	[1,530.26]	[505.07]	[791.51]	[427.85]	[694.39]
p60	11,083.60	9,650.00	1,828.27	4,220.20	1,080.75	2,520.78
	(100.00)	(87.07)	(16.50)	(38.08)	(9.75)	(22.74)
	[3,279.15]	[2,491.34]	[701.08]	[1,526.97]	[691.90]	[1,358.05]
p75	22,355.97	21,153.33	3,767.93	8,591.27	3,042.95	5,751.19
	(100.00)	(94.62)	(16.85)	(38.43)	(13.61)	(25.73)
	[6,811.98]	[4,401.91]	[1,361.05]	[2,361.74]	[1,653.88]	[2,934.08]
p90	42,020.00	28,355.30	2,699.77	15,056.86	4,102.68	6,495.99
	(100.00)	(67.48)	(6.42)	(35.83)	(9.76)	(15.46)
	[14,686.26]	[8,389.83]	[2,916.33]	[5,727.13]	[2,680.92]	[4,793.42]
Gini	-3.44	-5.88	-1.18	-2.24	-0.63	-1.84
	(100.00)	(171.17)	(34.20)	(65.15)	(18.19)	(53.64)
	[4.82]	[2.14]	[0.68]	[1.49]	[0.47]	[1.20]
% Nonpos.	-6.21	-5.05	-2.33	-3.04	-0.09	0.41
	(100.00)	(81.24)	(37.44)	(48.93)	(1.44)	(-6.57)
	[3.15]	[1.86]	[0.63]	[1.04]	[0.50]	[1.13]
p90p50	-10.72	-7.73	-2.69	-3.12	-0.56	-1.36
	(100.00)	(72.09)	(25.14)	(29.06)	(5.19)	(12.70)
	[6.09]	[4.65]	[1.69]	[2.13]	[0.85]	[1.45]

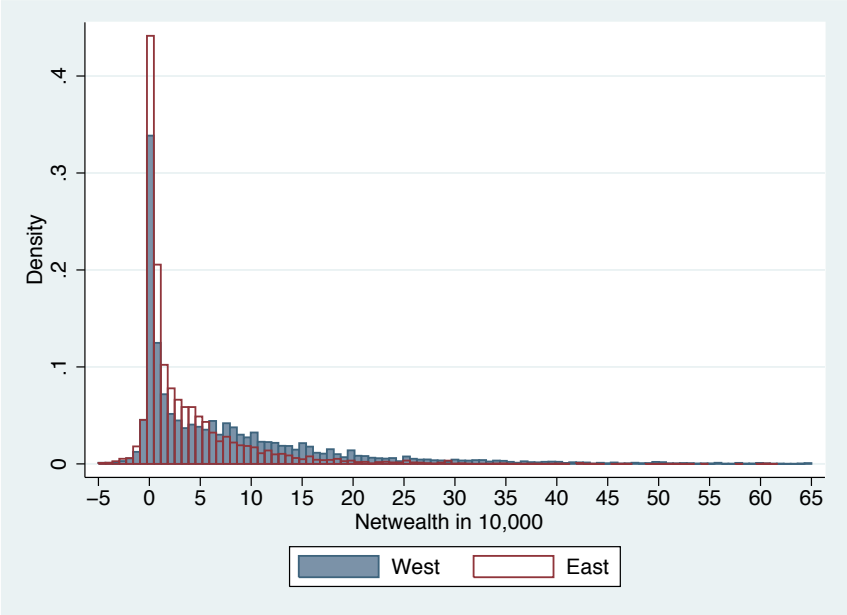
Table A1: Detailed Decomposition for 2002
Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	Δ_o	Δ_w	Δ_x	Δ_y	Δ_l	Δ_e	Δ_d
Mean	50,724.50	27,898.04	22,826.46	14,023.30	8,991.29	-1,881.09	1,692.95
	[2,670.30]	[3,472.72]	[2,696.97]	[1,420.69]	[1,864.32]	[619.37]	[1,278.84]
p5	782.07	211.03	571.03	408.91	548.75	-504.91	118.29
	[707.59]	[1,056.22]	[822.56]	[384.80]	[435.49]	[291.96]	[420.51]
p10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
p20	500.00	0.00	500.00	450.50	340.31	-129.64	-161.17
	[172.52]	[40.65]	[166.78]	[199.12]	[110.12]	[81.62]	[109.20]
p25	1,606.67	-549.17	2,155.83	1,834.84	1,038.71	-312.15	-405.57
	[415.77]	[428.76]	[470.39]	[295.71]	[336.27]	[134.52]	[233.15]
p30	3,040.00	-226.67	3,266.67	2,582.11	1,570.59	-419.57	-466.47
	[623.60]	[633.80]	[657.76]	[305.96]	[472.71]	[169.21]	[400.44]
p40	10,495.00	2,065.95	8,429.05	5,561.17	4,302.81	-826.12	-608.81
	[1,437.70]	[1,257.56]	[1,418.30]	[862.96]	[1,048.56]	[325.60]	[609.82]
p50	26,768.20	8,083.30	18,684.90	10,309.01	8,894.04	-621.94	103.79
	[2,255.00]	[2,858.62]	[3,026.99]	[1,523.94]	[2,132.51]	[743.93]	[1,257.53]
p60	42,428.18	22,173.33	20,254.85	11,333.79	8,739.19	-1,203.98	1,385.84
	[2,181.82]	[4,114.06]	[3,696.91]	[1,863.65]	[2,650.44]	[777.70]	[1,508.55]
p70	55,242.60	34,720.60	20,522.00	12,257.60	8,775.41	-1,981.67	1,470.66
	[2,508.32]	[4,550.29]	[4,018.41]	[1,961.13]	[2,245.25]	[960.33]	[1,975.26]
p75	64,071.27	40,617.93	23,453.33	15,194.69	8,801.53	-2,524.50	1,981.62
	[3,199.94]	[5,183.86]	[4,801.77]	[2,305.58]	[2,577.38]	[1,014.19]	[2,079.22]
p80	77,440.97	49,045.80	28,395.17	21,468.29	7,858.56	-3,522.60	2,590.92
	[3,897.86]	[7,047.43]	[6,982.75]	[3,872.37]	[3,960.22]	[1,404.77]	[2,628.14]
p90	113,735.87	66,868.70	46,867.16	31,014.31	12,622.66	-4,415.93	7,646.11
	[5,638.65]	[7,599.12]	[7,794.05]	[4,627.99]	[6,068.76]	[1,953.67]	[3,429.97]
p95	177,730.70	103,470.70	74,260.00	49,234.38	19,292.02	-6,533.96	12,267.56
	[10,536.31]	[13,860.60]	[12,602.80]	[9,714.72]	[10,619.04]	[3,252.75]	[5,350.50]
Gini	-4.63	-2.02	-2.62	-1.64	-1.35	0.24	0.13
	[1.32]	[1.56]	[1.20]	[0.56]	[0.70]	[0.22]	[0.48]
% Nonpos.	-2.33	2.64	-4.96	-3.94	-2.05	0.56	0.46
	[1.13]	[1.60]	[1.03]	[0.55]	[0.67]	[0.24]	[0.45]
% Neg.	-0.9	-0.08	-0.83	-0.4	-0.62	0.26	-0.06
	[0.76]	[1.06]	[0.62]	[0.28]	[0.37]	[0.14]	[0.25]
% Zero	-1.42	2.71	-4.14	-3.53	-1.43	0.31	0.52
	[0.87]	[1.29]	[0.93]	[0.48]	[0.61]	[0.22]	[0.37]
p75p50	-1.05	0.44	-1.49	-0.73	-0.78	-0.03	0.05
	[0.41]	[0.60]	[0.45]	[0.21]	[0.28]	[0.10]	[0.13]
p90p50	-2.75	0.01	-2.76	-1.34	-1.65	-0.02	0.25
	[0.86]	[1.36]	[1.04]	[0.43]	[0.63]	[0.19]	[0.29]

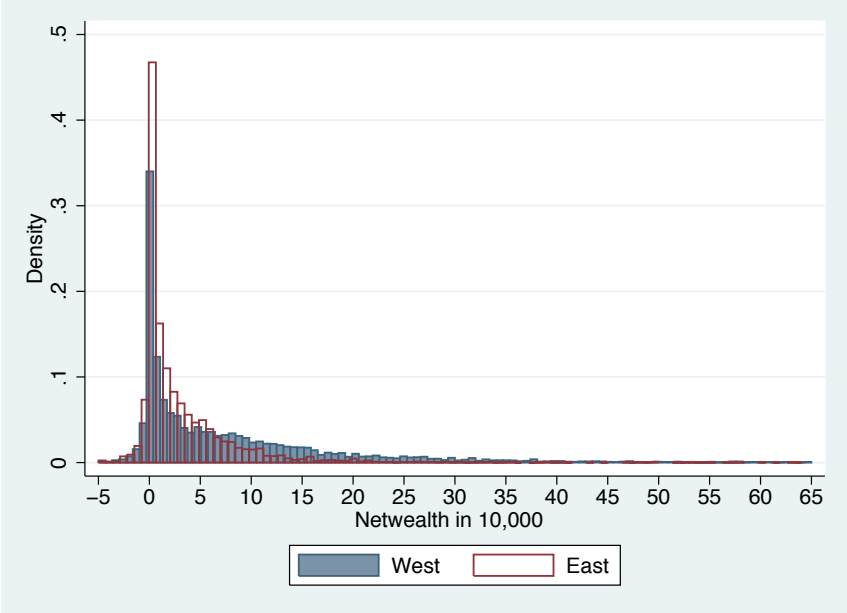
Table A2: Detailed Decomposition for 2007
Figures in square brackets present the standard error from 500 bootstrap samples.

Stats	Δ_o	Δ_w	Δ_x	Δ_y	Δ_l	Δ_e	Δ_d
Mean	59,437.98	33,750.62	25,687.37	18,174.46	10,089.90	-4,083.28	1,506.29
	[3,542.45]	[3,653.45]	[3,393.63]	[1,964.12]	[2,517.85]	[923.53]	[1,702.69]
p5	401.3	-577.5	978.8	293.74	1,031.40	131.39	-477.73
	[1,105.68]	[5,123.75]	[4,997.59]	[1,457.36]	[1,578.16]	[1,036.24]	[1,331.06]
p10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	[67.97]	[310.50]	[305.64]	[101.66]	[112.32]	[49.73]	[60.31]
p20	118.67	0.00	118.67	303.21	287.57	-162.5	-309.61
	[232.76]	[0.00]	[232.76]	[179.05]	[160.96]	[56.44]	[109.49]
p25	1,795.70	-473.3	2,269.00	1,723.48	1,620.18	-385.51	-689.15
	[585.12]	[438.11]	[533.71]	[289.90]	[373.44]	[112.96]	[212.96]
p30	3,051.00	-186	3,237.00	2,796.66	2,447.96	-707.76	-1,299.85
	[522.20]	[817.49]	[783.61]	[362.28]	[543.21]	[189.09]	[356.72]
p40	9,981.37	1,842.83	8,138.53	6,048.08	5,449.13	-1,642.18	-1,716.50
	[1,222.31]	[1,568.49]	[1,583.51]	[814.75]	[1,035.83]	[424.50]	[770.68]
p50	22,921.20	8,383.00	14,538.20	9,726.62	8,772.84	-2,819.76	-1,141.49
	[2,165.59]	[2,613.27]	[2,970.61]	[1,420.76]	[1,772.96]	[882.82]	[1,121.23]
p60	40,898.46	19,427.95	21,470.52	12,850.93	12,199.63	-3,516.52	-63.53
	[2,494.45]	[4,126.49]	[3,864.14]	[1,902.75]	[2,323.60]	[1,299.11]	[1,400.13]
p70	59,968.04	37,250.23	22,717.80	14,897.96	11,967.31	-4,575.24	427.78
	[2,970.61]	[5,163.48]	[4,309.68]	[2,266.33]	[2,834.80]	[1,387.23]	[1,810.82]
p75	71,331.44	46,164.43	25,167.00	17,971.98	11,637.37	-5,102.47	660.12
	[3,582.86]	[6,125.14]	[5,582.26]	[2,596.32]	[3,071.79]	[1,135.48]	[2,030.26]
p80	86,318.20	57,618.80	28,699.40	21,705.37	10,935.63	-5,379.96	1,438.36
	[3,965.31]	[6,894.03]	[6,226.56]	[4,036.00]	[3,262.58]	[1,672.52]	[2,023.27]
p90	142,513.70	95,873.80	46,639.90	36,671.19	13,173.91	-9,609.16	6,403.97
	[9,852.27]	[14,867.17]	[11,139.69]	[7,327.62]	[5,493.03]	[3,197.77]	[4,504.10]
p95	211,722.13	134,007.20	77,714.93	55,622.71	19,532.35	-11,287.94	13,847.81
	[10,609.94]	[19,226.87]	[17,880.59]	[13,464.97]	[11,504.86]	[4,038.56]	[7,485.90]
Gini	-2.71	1.26	-3.97	-1.71	-3.07	0.25	0.56
	[1.72]	[3.25]	[2.78]	[1.12]	[1.19]	[0.39]	[0.75]
% Nonpos.	-3.49	2.17	-5.66	-4.1	-4.28	0.96	1.76
	[1.16]	[1.89]	[1.72]	[0.63]	[0.90]	[0.29]	[0.53]
% Neg.	-0.99	-0.54	-0.46	-0.22	-1	0.23	0.53
	[0.86]	[1.41]	[1.32]	[0.47]	[0.61]	[0.20]	[0.38]
% Zero	-2.5	2.71	-5.21	-3.88	-3.28	0.73	1.23
	[0.86]	[1.52]	[1.26]	[0.49]	[0.64]	[0.23]	[0.39]
p75p50	-0.43	0.75	-1.18	-0.75	-0.86	0.21	0.22
	[0.34]	[0.53]	[0.59]	[0.26]	[0.30]	[0.13]	[0.15]
p90p50	-0.91	1.65	-2.57	-1.52	-2.14	0.47	0.63
	[0.78]	[1.31]	[1.25]	[0.63]	[0.71]	[0.29]	[0.38]

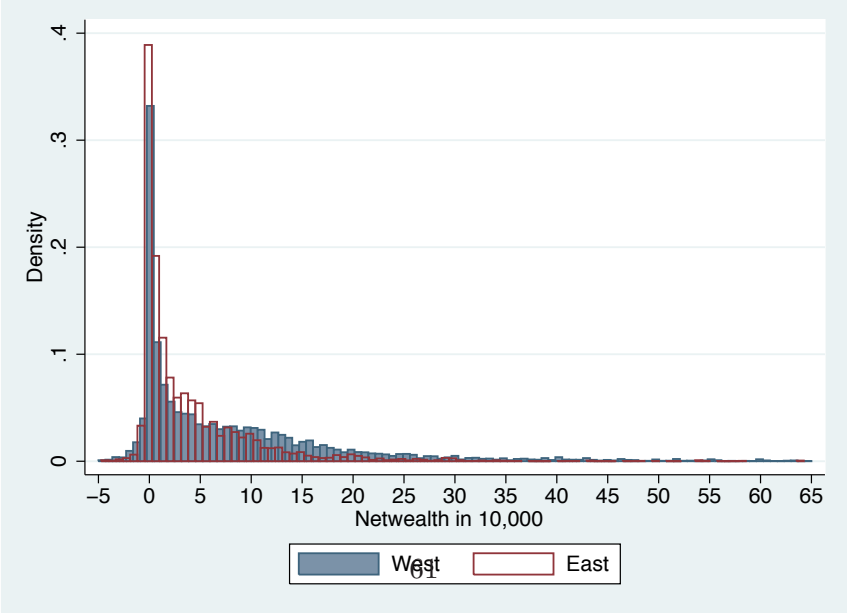
B Graphs



(a) 2002

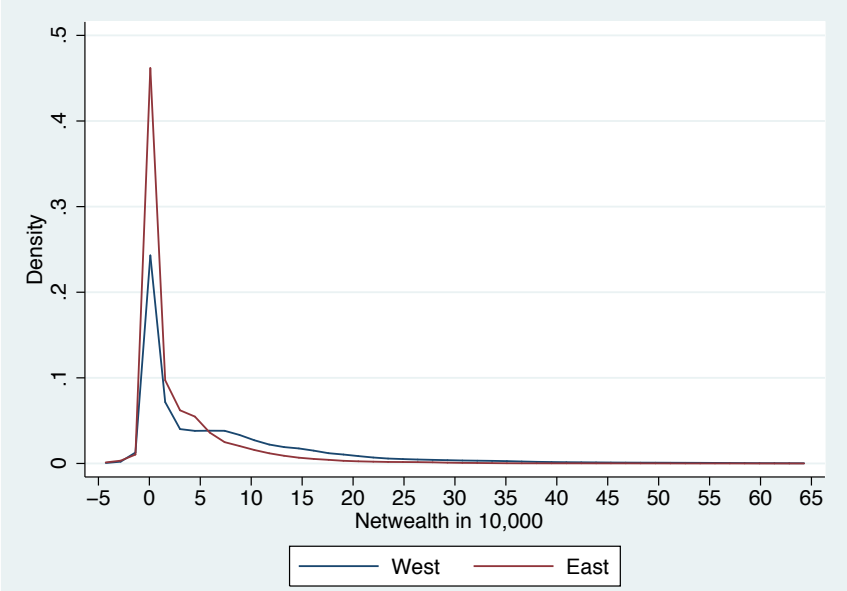


(b) 2007

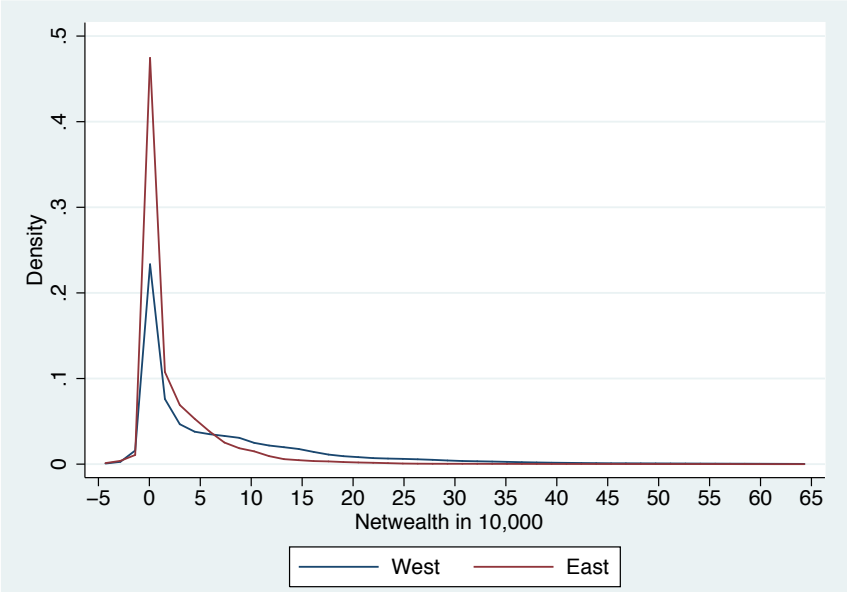


(c) 2012

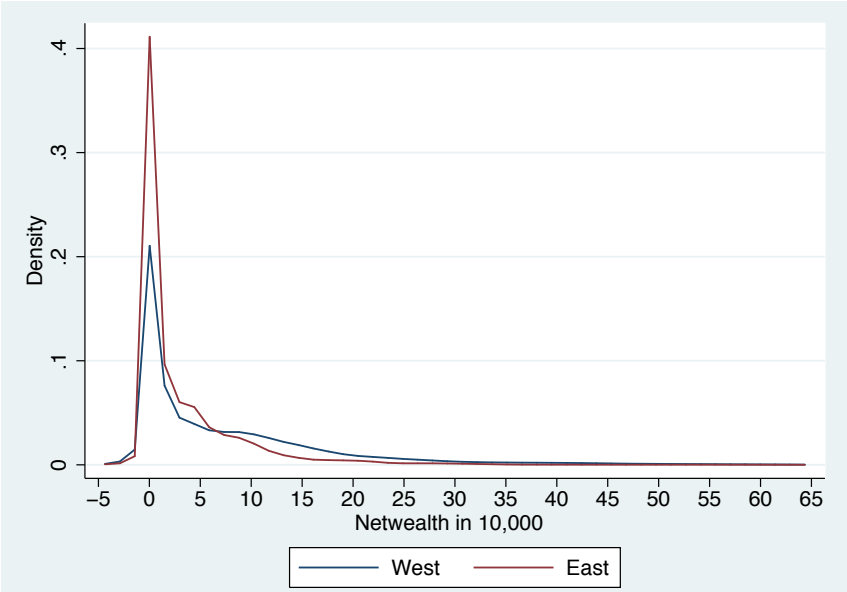
Figure 1: Histogram of Household Net Wealth



(a) 2002

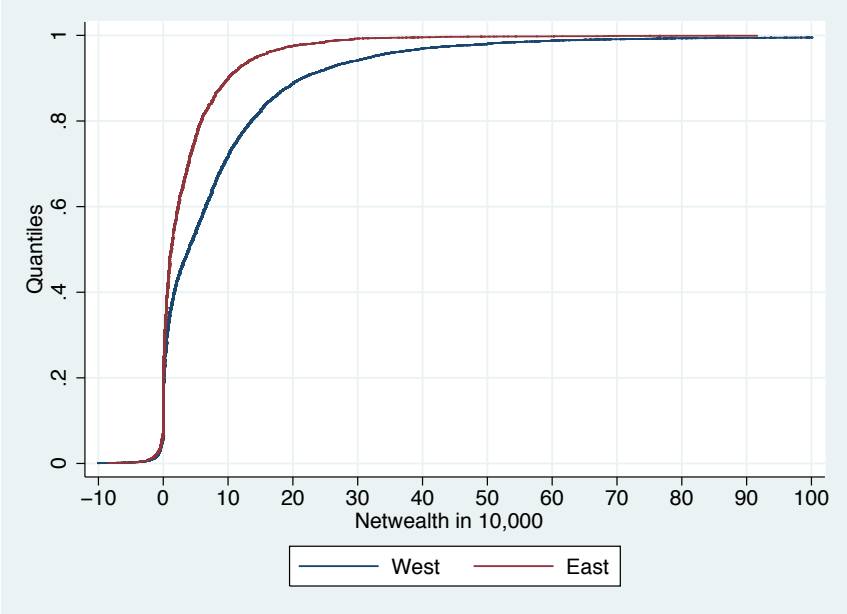


(b) 2007

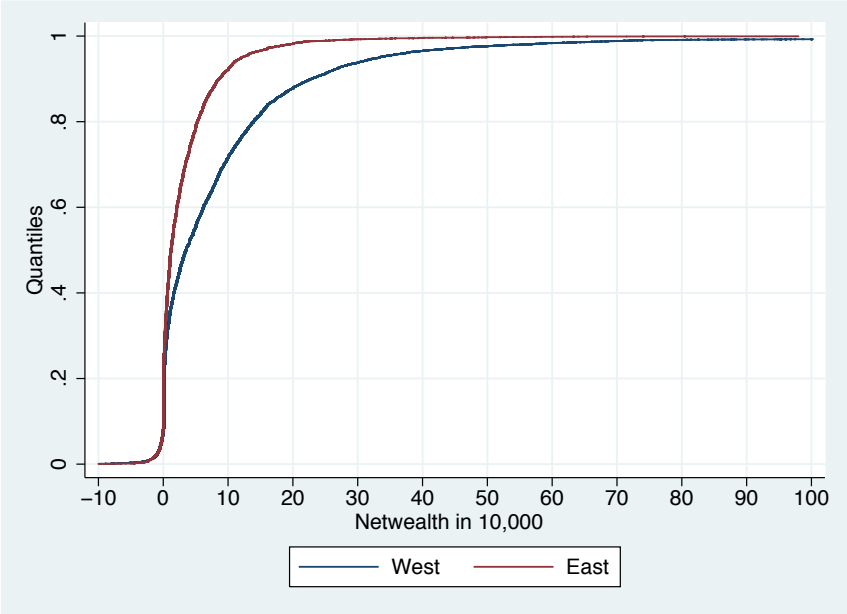


(c) 2012

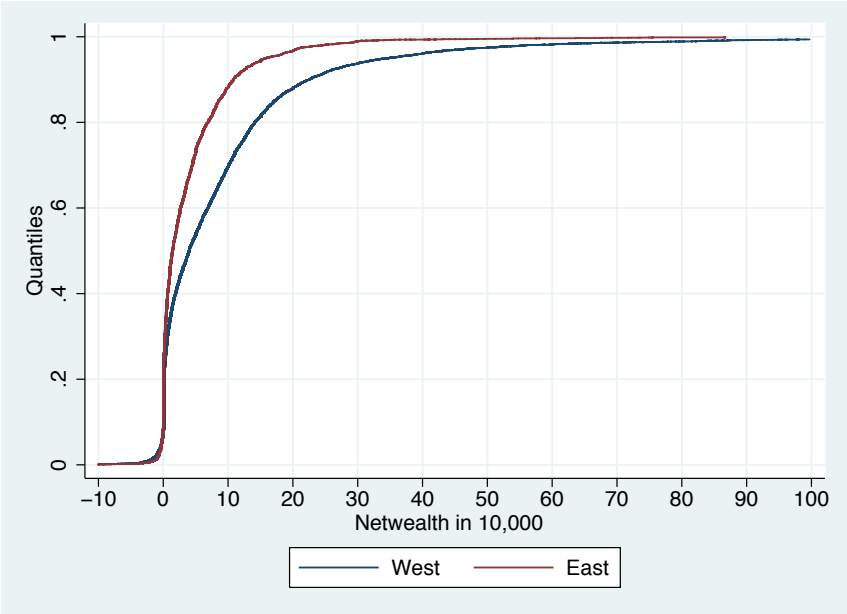
Figure 2: Adaptive Kernel Density Plot of Household Net Wealth



(a) 2002

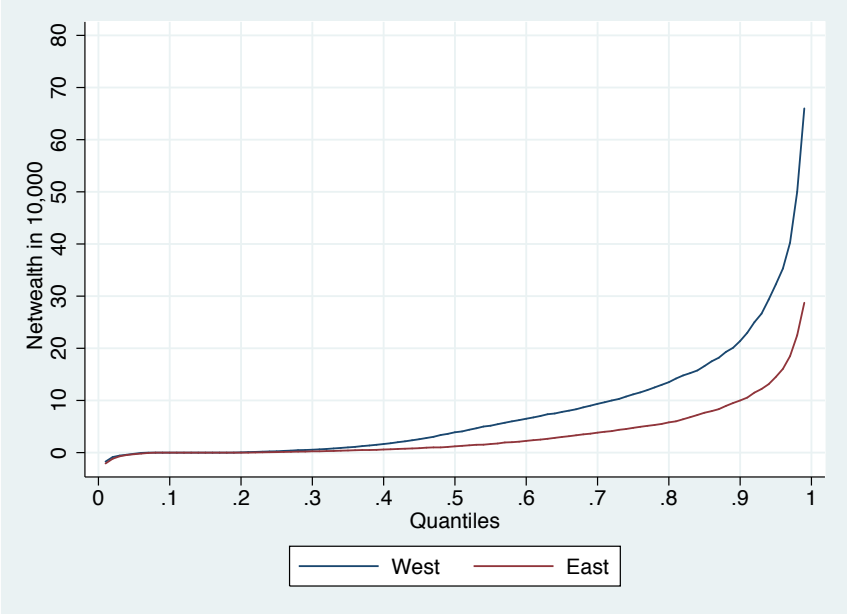


(b) 2007

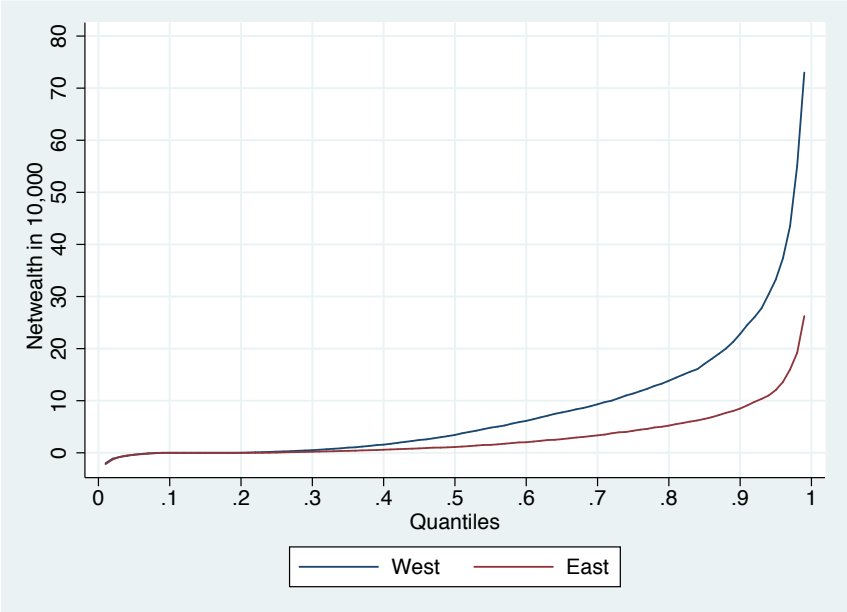


(c) 2012

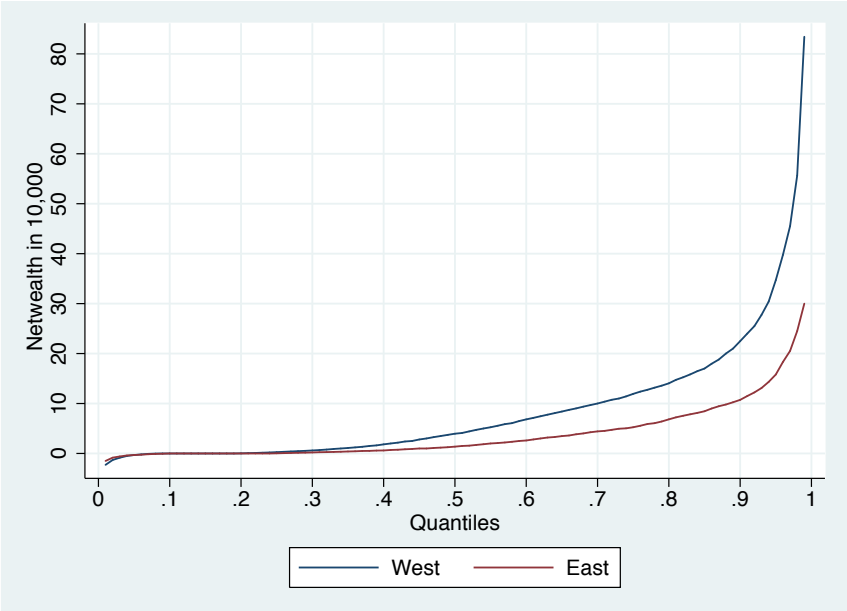
Figure 3: Cumulative Density Function of Household Net Wealth



(a) 2002



(b) 2007



(c) 2012

Figure 4: Inverse CDF of Household Net Wealth

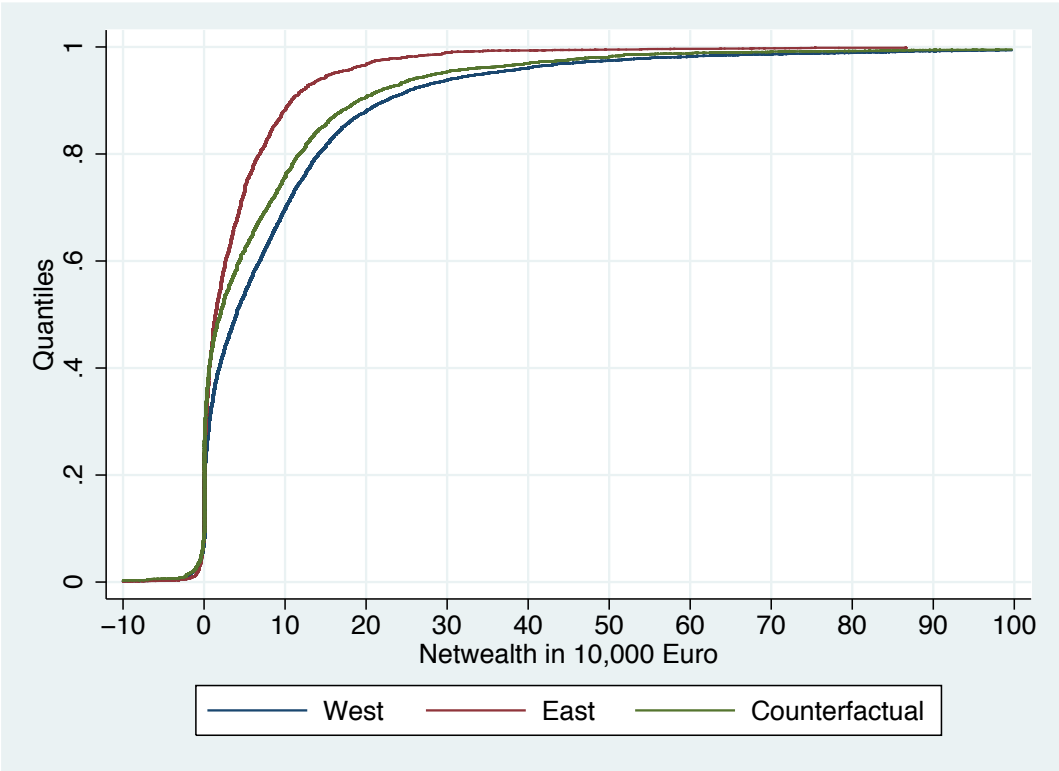


Figure 5: CDF of Counterfactual Net Wealth in 2012